

# ST. PAUL AVENUE REVITALIZATION

MILWAUKEE, WISCONSIN

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A SENIOR CAPSTONE PROPOSAL

Submitted in partial fulfillment of the requirements for the degree  
Bachelor of Science in Landscape Architecture

Department of **Landscape Architecture**  
College of Agricultural and Life Sciences

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Approved by  
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# MENOMONEE VALLEY

Figure 1.00

## ACKNOWLEDGEMENTS

I would like to thank the people and organizations that have helped me throughout the various stages of this capstone project. Their resources and advice allowed me to complete and finesse this project. A special thanks goes out to

- **Michelle Kramer, the director of Marketing & business development for the Menomonee River Valley Inc, for providing me with resources and guidance throughout the whole process.**

**I would also like to thank the UW Madison Department of Landscape Architecture. These four past years in the program have been stressful and challenging, but also rewarding. I am very thankful for the variety and depth of the knowledge and experience I've attained here, and am excited to put it to use in my career as a landscape architect.**

**Lastly, I'd like to thank my family, friends and peers, who have supported and cheered me on.**



Figure 1.01

## ABSTRACT

West St. Paul Avenue is located in the Menomonee Valley in the heart of Milwaukee, just North of the Menomonee river. With easy access from I-94 & I-43, proximity to the Historic Third Ward and some of Wisconsin's biggest attractions, it is the gateway to the city of Milwaukee.

Being in this prime location makes St. Paul Ave the first thing that many people see when entering the city. Due to an unsightly and empty looking streetscape, this site is under utilized and undervalued. With a strong history of industry and manufacturing businesses, the area is degraded and needs better storm water management systems.

As part of the Menomonee Valley revitalization project, the Menomonee Valley Partners Inc have been working to restore and enhance the area, ecologically, socially and economically. St. Paul Avenue is the next phase in this project, and meetings about short

term solutions to these problems started in the Summer of 2016.

The proposed capstone vision for St. Paul Avenue intends to build off the existing restoration of the Menomonee Valley, while specifically embracing the historical culture of the site into the street aesthetic, encouraging mixed use development and increasing canopy cover. The methods I will use to inventory and analyze the existing site include scholarly research, precedent studies, GIS, site visits, client meetings, pictures and diagrams. These methods will help guide me in shaping my goals and design strategies. The final design product will revitalize St. Paul Avenue and the surrounding area into a thriving, pedestrian friendly and sustainable site. This will encourage social, economic and ecological development, while also serving as a culturally inspiring and aesthetically pleasing gateway to the City of Milwaukee.

# MY BACKGROUND



## THE AUTHOR

In my fourth year as a landscape architecture student at UW Madison, I couldn't be happier with this major that I stumbled upon as a sophomore in college. In retrospect, this major seems like such a natural fit with my past experiences and passions. My parents taught me from an early age to appreciate and protect the natural environment surrounding me. This appreciation was reinforced by chores involving recycling, composting and helping my dad maintain our vegetable and flower gardens. Our family's weekly hikes and many camping trips over the years enhanced my love for the outdoors. Growing up I had also always enjoyed drawing, and had played with the idea of going to college for architecture. In researching landscape architecture after my freshman year of college, I found a major that combined my passions for art, architecture, gardening and environmental sciences. Now in my fifth and final year as an undergrad, I still enjoy and am consistently challenged by this major. I have learned more about creating environmentally sustainable places while allowing my creativity to blossom in my designs. I am very excited about my prospects for the future.

Mara F. Redding  
Department of **Landscape Architecture**

Fall 2016

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# INTRODUCTION

## INTRODUCTION

To fulfill the requirements of the Senior Capstone Program in the Department of Landscape Architecture at the University of Wisconsin-Madison I will investigate how ideas of ecological urbanism may inform the design of streetscape designs. This investigation will be given context and focus by the concerns and goals of the Menomonee Valley Partners Inc., which include historic preservation and urban forestry.

## RESEARCH

I will use theories of Ecological Urbanism to analyze my capstone site in the Menomonee River Valley, and choose sustainable design solutions that revitalize and reintroduce the industrial character of the St. Paul Street corridor. The Menomonee valley is a historical manufacturing district, that for years has employed many Milwaukeeans. Unfortunately at the same time. It has been contributing to the pollution of the Menomonee River. The Menomonee Valley Partners have worked to restore and redevelop the brownfields of the Valley and the surrounding waters. There has been much progress in the ecological restoration of this area, and now I intend to use these same techniques to unify and connect St. Paul street to the rest of valley. I will use research and precedent studies to find ways to keep and enhance the urban, industrial atmosphere of St. Paul street while also advancing ecological considerations like storm water management and reducing greenhouse gases.

## PROJECT TYPE

St. Paul Avenue is an urban streetscape design in downtown Milwaukee, which is part of the Menomonee Valley Revitalization plan. Using research and precedent studies, I will develop a plan that will enhance the aesthetic of the street and reduce storm water runoff. I will do

this by using the manufacturing history and culture of the area to create a pedestrian friendly cohesive sense of place. Doing this will draw more people onto the street, and therefore encourage more businesses to move into the area. Since this is not a residential area, I will use precedent studies of similar non-residential urban areas and urban river fronts to brainstorm other ways to liven up the street and encourage economic growth.

## PROFESSIONAL FOCUS

The Menomonee Valley has a long history of manufacturing and a diverse range of cultures that have relied on this areas jobs to build up communities. The Menomonee Valley Partners' goal is to turn St. Paul street into a cohesive, design showroom district that builds upon the industrial culture and history of the area. My clients' concerns include issues like adding street trees and vegetation on such a narrow street, limited street parking, the unwelcoming aesthetic of the viaducts and how to draw people onto the street without having any residential properties nearby. In order to address these issues, we have come up with a set of ecological, social and economic goals that focus on historic preservation and urban forestry. These goals include increasing canopy cover, improving storm water management, encouraging the use of local and recycled materials, enhancing the pedestrian friendly atmosphere, encouraging industry growth, and unifying the street with the rest of the Menomonee River Valley revitalization project.

## CAPSTONE PRODUCT

The products of this capstone will include a set of design documents and recommendation for St. Paul Avenue, which will be submitted to The Menomonee Valley Partners Inc., and a capstone document, which will be submitted to the Department of Landscape Architecture in partial fulfillment of the degree of Bachelor of Science in Landscape Architecture.

# PROJECT WORKFLOW



Figure 1.02

## REVITALIZING THE MENOMONEE VALLEY

The first semester involves developing the Capstone proposal from a regional to site scale. This will include several site visits with clients to obtain a better understanding of local conditions and the client's expectations. The final proposal for the semester is based on cumulative research from literature reviews, precedent studies, programmatic development, and inventory and analysis that address a variety of issues

The second semester involves actually executing the design of the previous semester's research & proposal. This leads to planting, grading, drainage, details, and open space design schemes that are presented to the public during in May.

### Phase 1

September  
October  
November

Project definition

GIS data

Goals & objectives

Literature review

Relevant precedents

### Phase 2

December  
January  
February

Programming

Conceptual design

Master plan

Grading & drainage

Site visits

### Phase 3

March  
April  
May

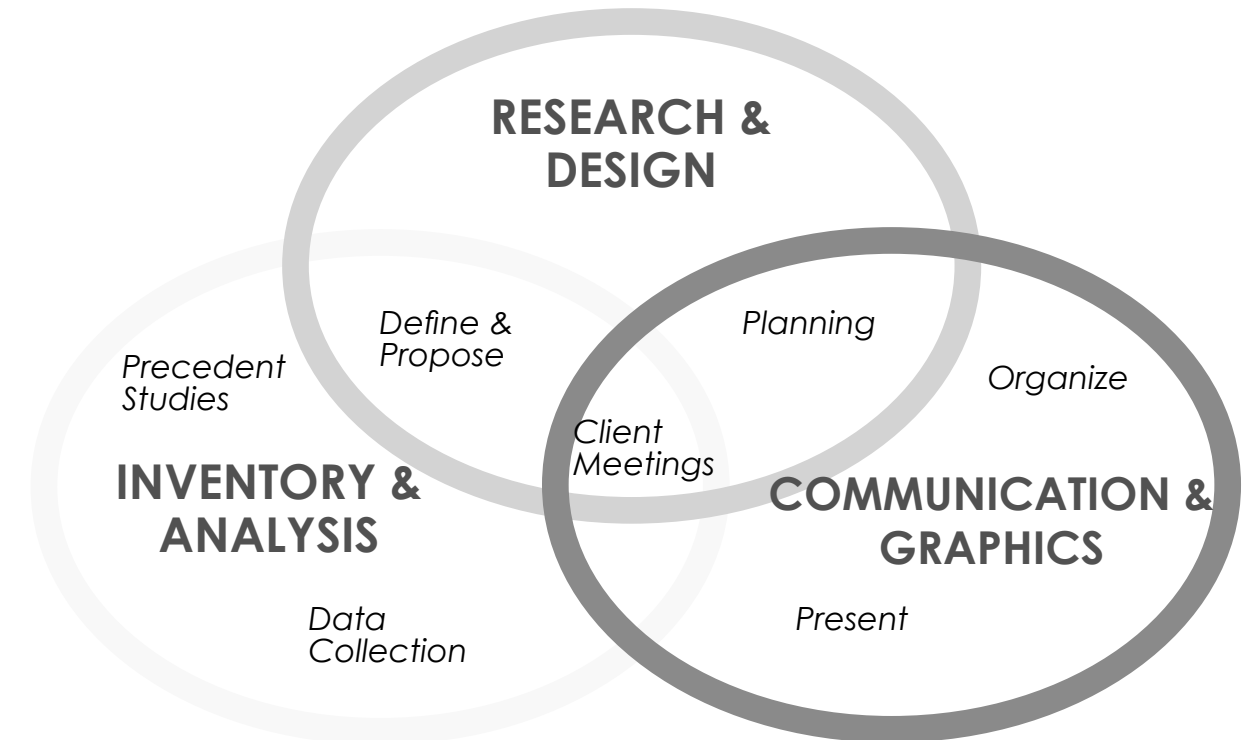
Planting design

Construction details

Create Graphics

Refine design

Defend & present



# SITE HISTORY

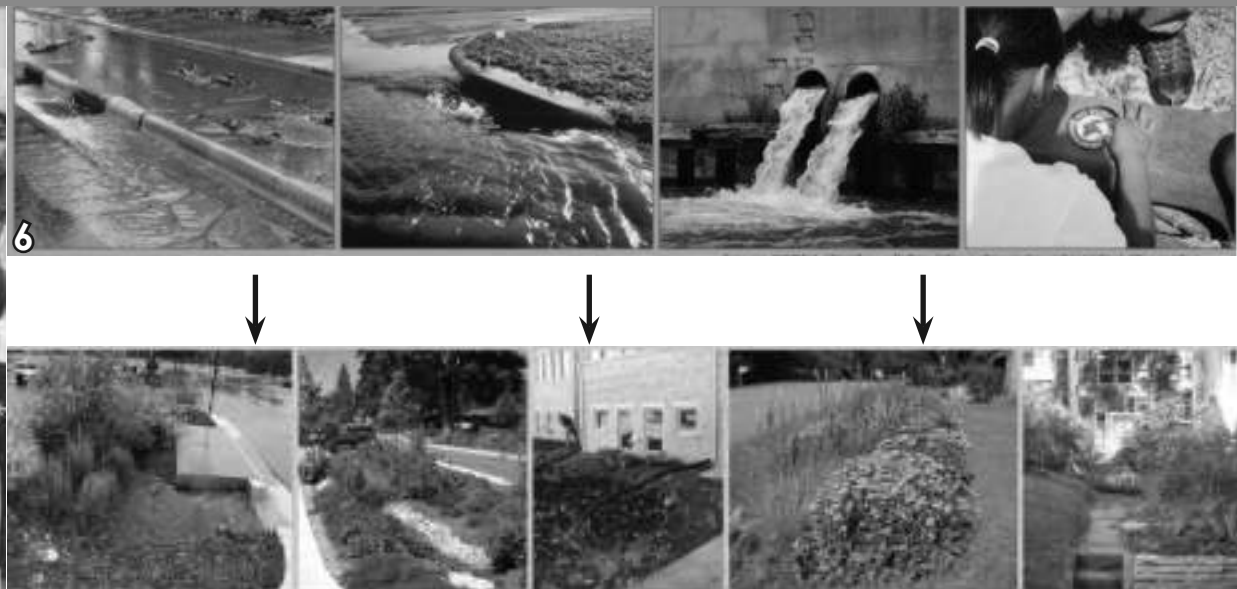
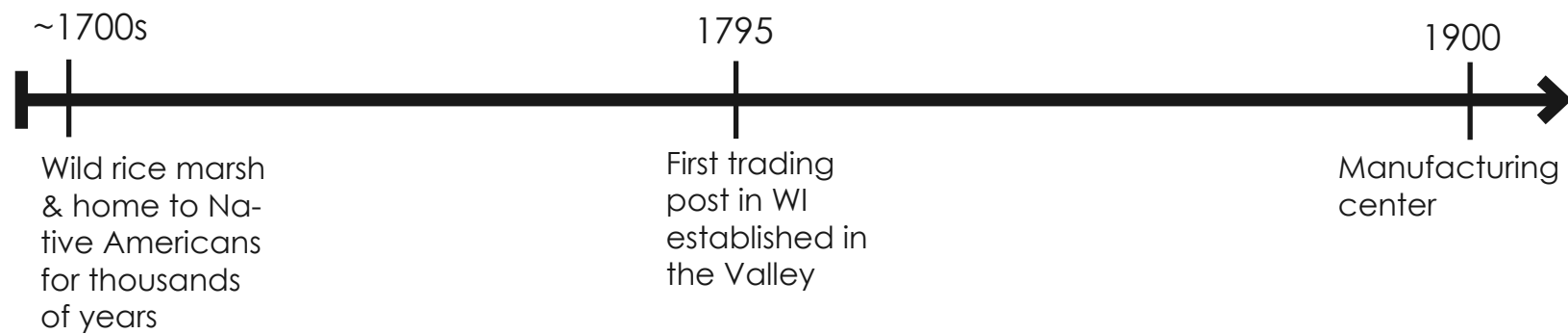


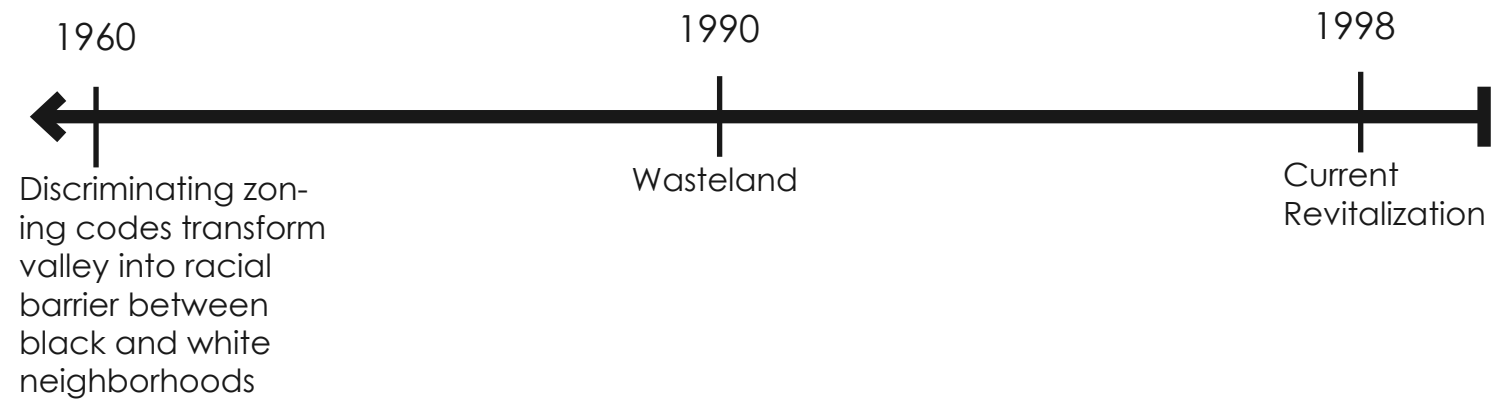
Figure 2.03- Figure 2.09

## MENOMONEE VALLEY HISTORY: 1700-1900

The Menomonee Valley has a **unique history** that has been home to a variety of residents, environments & businesses. The valley occupies **1200 acres** expanding **four miles long and a half mile wide** from the confluence of the Milwaukee and Menomonee Rivers to the Miller Park Stadium.



## MENOMONEE VALLEY HISTORY: 1900-2016



# SITE HISTORY

Figure 2.10



Figure 2.11



Figure 1.12



## MENOMONEE VALLEY HISTORY: 1600-1900

The Menomonee Valley has a unique and transformative history: from wild marsh to manufacturing center to infamous eyesore, to its current revitalization into a national model of economic and environmental sustainability. At 1200 acres it extends four miles long and a half mile wide from the confluence of the Milwaukee and Menomonee Rivers to the Miller Park Stadium. Historically, the Valley's wetlands supported a wild rice marsh and was home to American Indians for thousands of years. By the 1700s, the main group of people living in the Valley were the Potawatomi, joined also by the Ojibwa, Fox, Menominee, Ottawa, Sauk, Winnebago and others at various time in history. The name "Menomonee" came from the Algonquin "meno" and "min" which translates to good grain or fruit. In 1795 this all changed when fur trader Jacques Vieau established the first permanent trading post in Wisconsin on the bluffs of the Valley. By the 1800s, with the settlement of Milwaukee pushing towards the Valley, Milwaukeeans filled the marsh with soil, gravel, and waste in order to establish dry land for additional development. In planning for future development, they also straightened the Menomonee River and cut canals to provide Shipping routes.

([www.renewthevalley.org/history](http://www.renewthevalley.org/history))

Figure 2.13



Figure 2.14



## MENOMONEE VALLEY HISTORY: 1900-PRESENT

By the late 1800s, thousands of workers arrived in the valley to work in industrial jobs. This migration spurred the development of the first large residential neighborhoods west of downtown Milwaukee. By the early 20th century, the Milwaukee became known as the "Machine Shop of the World," with the Menomonee valley as it's heart. Production in the valley varied from machinery, rail cars, and electric motors to meat processing, flour production and brewing factories. While this created jobs for thousands of people it also devastated the Valley's natural resources. By the 1960s, discriminating zoning codes created intensely segregated neighborhoods throughout the city, transforming the Valley into "Milwaukee's Mason Dixon line," dividing white communities to the South from black communities to the North.

**\$\$ECONOMIC GAIN** → **ECOLOGICAL DISASTER**



→ **SUSTAINABILITY MODEL & THRIVING ACTIVITY HUB**

By the late 1900s, the Valley was in decline due to changing demands and manufacturing practices. The century of heavy industry left the Valley with many abandoned industrial buildings, and the land blighted and contaminated. As businesses left, bridges connected to the Valley were demolished, leaving it isolated from the rest of the city. The surrounding neighborhoods were affected the most by the decline: residents suffered from high levels of asthma and obesity, poor air quality and limited access to jobs and recreation opportunities. A change had to be made; in 1998, the City of Milwaukee teamed up with the Menomonee Valley Business Association and MMSD started mapping out a plan for the Menomonee Valley's redevelopment.

# SITE HISTORY

Figure 2.15



MENOMONEE  
VALLEY 2.0

St. Paul Recommendations



## ST. PAUL AVE HISTORY

Before it was St. Paul Avenue, the street was under water and then it became Detroit and Fowler Streets, before finally becoming turning into East and West Avenue. It used to be located in marshland that was sometimes under water. Old maps of the city reveal that Fowler Street ran West from the river to North 6th Street, where a bluff obstructed its way. The street continued on the other side of the hill at North 8th Street and then continued West along the ground of the Menomonee River Valley.

In the mid 1960s, freeway construction took out the gap between Fowler Street and West St. Paul Avenue. That two block section was paved and the two streets combined into one. Simultaneously, a bridge was built over the river to connect West Fowler and East Detroit Streets.

Figure 2.16





# THE CLIENTS



## STAKEHOLDERS:

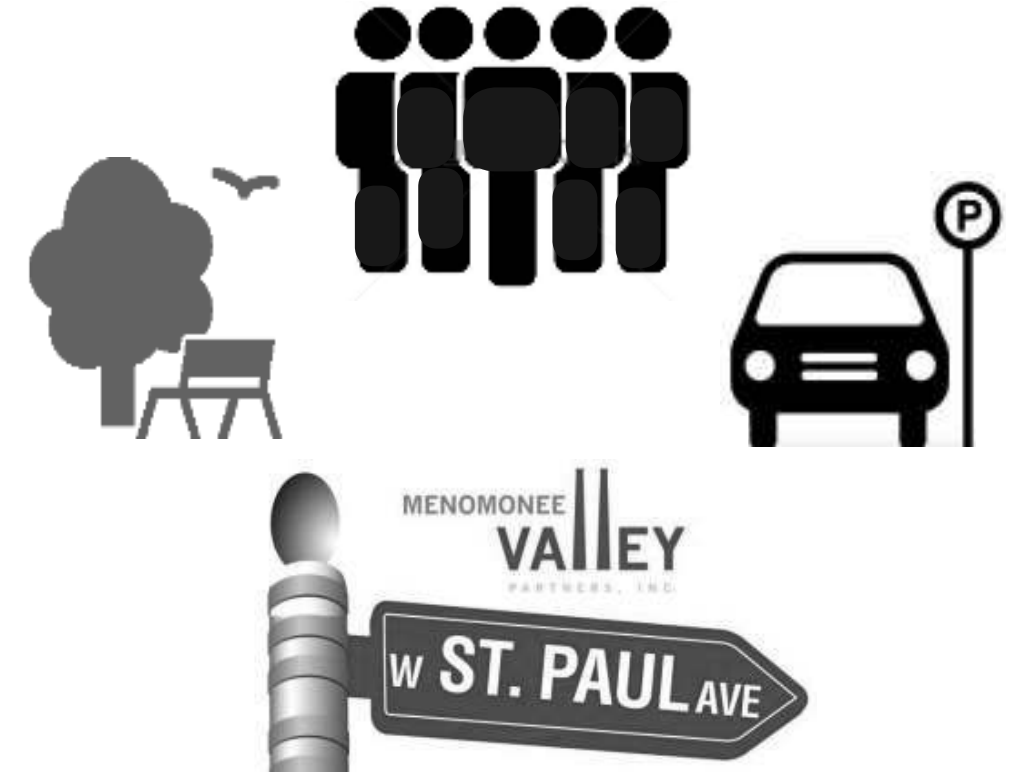
- **Menomonee Valley Partners Inc:** a nonprofit organization formed in 1999.
- **St. Paul Avenue Streetscaping Committee:** group of property/business owners and area professionals.
- Both groups are working together to help **revitalize St. Paul Avenue into a vibrant, cohesive, design showroom district** that builds upon the industrial culture and history of the area.
- As the **gateway into the city**, they intend to create a more welcoming presence.

As part of the **Menomonee Valley revitalization project**, the Menomonee Valley Partners Inc have been working to **restore and enhance the area, ecologically, socially and economically**. St. Paul Avenue is the next phase in this project- meetings about short term solutions to these problems started in the Summer of 2016.



## CONCERNS:

- 1) With the area being non-residential, how do you attract more people?
- 2) How will new businesses deal with limited street parking?
- 3) How do we add trees and vegetation with the roads being so narrow?
- 4) How do we unify St. Paul with the Menomonee Valley & larger community?



# GOALS

## VISION

### Short term goals:

- Clean and weed sidewalks more frequently
- Decorative elements on street lights
- Temporary parklets/ display to promote St. Paul
- Canvas to cover/ decorate warehouse windows
- Large scale murals & street art
- Play up industrial feel in design elements
- Branding of a flag for the street
- Add planters to build cohesive identity



### Long term goals:

- Activate storefronts with street festivals/ showroom district
- Living green walls under the viaduct
- Add bike Lanes
- Light viaduct
- Add street trees
- Bublr bike station



## ECOLOGICAL GOALS

### 1) Improve stormwater management

- Reduce runoff by 30%
- Reuse & recycle water on site

### 2) Encourage biodiversity

- Plant a diverse group of flowering plants, trees and native perennials with varying bloom times

### 3) Promote sustainability & resiliency

- Create regenerative systems
- Protect & restore natural resources
- Add pervious paving on streets and give businesses incentives to do so as well

### 4) Encourage use of local & recycled materials

- Give incoming businesses incentive to use local & on site material
- Recycle & reuse material on site for trash bins, compost, art, storefront etc.



# GOALS

## SOCIAL GOALS

### 1) Increase public use of space

- Increase aesthetic of streetscape
- Increase lighting on street

### 2) Pedestrian & Biker friendly

- Bike & pedestrian paths
- Decrease street width by using right of ways differently

### 3) Promote regional identity & encourage cultural integrity

- Connect streetscape with larger Menomonee Valley revitalization
- Highlight industrial history in a commercial context that allows industry to continue to thrive

### 4) Provide opportunities for community involvement

- Showcase student & community art
- Foster inclusive environment to showcase history & partnerships



Figure 2.23

## ECONOMIC GOALS

### 1) Encourage industry growth and businesses

- Increase number of manufacturing businesses on street
- Create higher paying entry level jobs

### 2) Recreate St. Paul Ave as a design & decor showroom

- Unify street as industrial/ commercial corridor
- Anchored by home & commercial decor manufacturing & design showroom storefronts

### 3) Encourage sustainable development

- Give businesses incentive to use greener practices
- Plan for monitoring & adaptive management

### 4) Invest in restoration and redevelopment of historic industrial buildings

- Restore siding to original finish
- Promote need for one more restaurant on block to increase use of street



Figure 2.24

# PROGRAMMING

## Goals--> Programming

I compiled the goals of the larger context of the Menomonee Valley revitalization project, with my clients goals and my own, to come up with a set of program elements. These programs each fit within the broader categories of ecological, social or economic design goals.



### 1) Ecological

- Rain gardens
- Rain barrels
- Green roofs
- Green walls under viaducts
- Bioswales
- Native urban tolerant street trees
- Native planters
- Pollinator gardens
- Permeable paving



### 2) Social

- Revitalize rusted & unsightly viaducts & stairways
- Promote a connection from viaduct to street level
- Add detailed signage about history & culture of site
- Showcase student & community artwork (murals etc)
- Suspended LED light fixture or bulbs under viaduct & lit sidewalks
- Decorative element on utility poles



### 3) Economic

- Banner flags with branded "St. Paul Ave District"
- More businesses on the street will encourage industry growth & the industrial commercial culture of the area
- Add bike-friendly infrastructure (like Bublr bikes station)
- Showcase business products through redesigning storefront.

# RESEARCH

**Ecological urbanism is a more dynamic approach that focuses on developing practices and design ethics that are both sustainable and functional for people everywhere.**

**I can apply my research on ecological urbanism directly to my capstone project, which aims to restore and revitalize the historic culture of a degraded industrial site.**

## ECOLOGICAL URBANISM: LITERATURE REVIEW

"Green Urbanism down under" draws on comparisons between the history and development of Australia and the United States. These commonalities make Australia's sustainable lessons and partial urban and landscape solutions relevant in the United States. Parallels within the legal system, social and cultural legacies of Great Britain and an arrival in the new world with a similarly exploitative ethic makes the two countries alike in some not so estimable ways. Both countries are highly urbanized and excessive consumers, which contributes to the countries high per capita greenhouse gas emissions. However, there is much to be learned from some of Australian's more sustainable communities. Beatley "emphasizes unique and special approaches to urban sustainability and landscape conservation and creative, compelling ideas and programs" (Beatley, 7) from Australia that could be used in the United States. The book puts these stories and concepts in broader contexts, "viewing urban trends and sustainability patterns within and outside Australia" (Beatley, 7).

"Urban Design for an Urban Century" discusses the importance of urban designers and architects in modern society, and the vast challenges they face in developing practices and design ethics that are both sustainable and functional for people everywhere. The book traces the origins of urban design, and explains how booming cities and the changing world after the industrial revolution created the need for the profession to help people navigate and make sense of this new urbanized world. It introduces urban design as both a social and civic art, that continues to be a "vital discipline because the care and shaping of our cities is too complex and too important to be left to those who see it only as a vehicle for creating objets d'art" (Brown, x). The urban designer in the 21st century is responsible for not only planning and designing the spaces between buildings, but also for recognizing and enhancing the "fundamental relationship between physical form and the social life of our communities" (Brown, xi).

"Greening of Architecture" discusses how the "greening of architecture" has evolved into a practice that "rationalist, performance-based and remediating measures in response to particular unsustainable concerns, to far more encompassing ecological and systemic processes cutting deep across contemporary culture" (Deviren, 1). It also explores how the ambiguity and indeterminacy of the words "sustainability" and "green" has created problems for the advancement of the green movement. This movement occurred as a reaction to the Modern Movement, which has involved the wasting of land and resources, over dependence on fossil fuel-driven technologies, poor construction practices and reliance on cars. This book argues that in order to combat some of these issues, "it is important to see the greening of architecture as an evolutionary process and cyclical ecology rather than simply a fixed set of strategies for a fixed period of time" (Deviren, 2). It is essential to have this more dynamic view, in order to help shift cultural values and needs and therefore foster a standard for sustainable architecture and design in modern urban societies.

# PROJECT TYPE & FOCUS

St. Paul Ave. is an **urban streetscape** that is part of the Menomonee Valley Revitalization plan.

Using research and precedent studies I will develop a plan for the street that will **enhance the historic character and aesthetic of the street**, while also reducing storm water runoff and increasing canopy cover.

Figure 2.31

## PROFESSIONAL FOCUS

The Menomonee Valley has a long history of manufacturing and a diverse range of cultures that have relied on this areas jobs to build up communities. The Menomonee Valley Partners' goal is to turn St. Paul street into a cohesive, design showroom district that builds upon the industrial culture and history of the area. My clients' concerns include issues like adding street trees and vegetation on such a narrow street, limited street parking, the unwelcoming aesthetic of the viaducts and how to draw people onto the street without having any residential properties nearby. In order to address these issues, we have come up with a set of ecological, social and economic goals that focus on historic preservation and storm water management. These goals include improving storm water management on the site, encouraging the use of local and recycled materials, making the space more pedestrian friendly, encouraging industry growth, and unifying the street with the rest of the Menomonee River Valley revitalization project.

Figure 2.32

# PRECEDENT STUDIES

## PABST BREWERY REDEVELOPMENT

**LOCATION:** Milwaukee, WI

**FIRM:** Multiples firms

**PROJECT SIZE:** 21 Acres

**DATE:** 2007-present



Figure 1.31



Figure 2.32

Pabst Brewing Co. closed its Milwaukee brewery 20 years ago in 1996, leaving a dozen abandoned buildings behind on its 21-acre downtown site. In 2006 a philanthropist named Joseph Zilber purchased the site for 13.6 million dollars and redeveloped the area into a mixed-use neighborhood of apartments, office spaces, educational institutions, a hotel and more. Some of the many ecological services that the redevelopment has enhanced includes stormwater management, brownfield redevelopment and LEED certified buildings. I would like to employ many of these same ecological strategies, since my capstone is also in a historic area in downtown Milwaukee with mostly impervious surfaces and little stormwater management. I will use some of their successful design strategies to drive my own planning and design concepts.

### ECOLOGICAL CONSIDERATIONS & HISTORIC INDUSTRIAL CULTURE



Figure 1.34



Figure 2.33



Figure 2.35

# PRECEDENT STUDIES

## UNDERPASS PARK

**PROJECT:** Underpass Park

**LOCATION:** Toronto, ON, Canada

**FIRM:** PFS Studio & The Planning Partnership

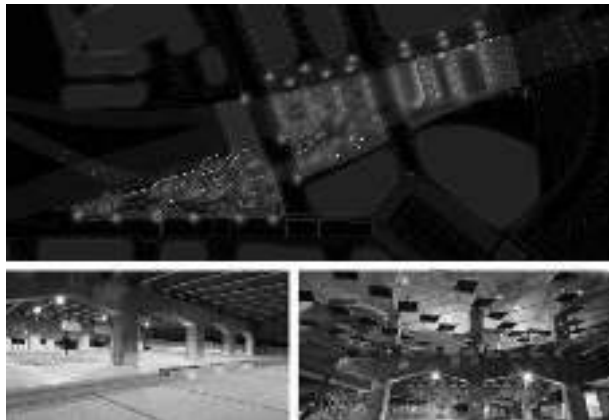
**DATE:** 2016



Figure 2.36



### LIGHTING & MIRRORS



### SEATING & NATIVE PLANTING



### ARTWORK & RECREATION



Figure 2.37

Underpass park is located beneath existing highway overpasses in downtown Toronto. PFS Studio with The Planning Partnership redesigned this forgotten and degraded area into an active public park to promote the overall health and vibrancy of this area of the city. This park offers a wide variety of recreational and social opportunities while also connecting existing local neighborhoods and nearby parks. The success of this design won it the 2016 "ASLA Award of Excellence."

*Since a portion of my site is also a degraded, underutilized underpass area an highway, I can take program elements from this design to revitalize my area.*



# PRECEDENT STUDIES

## PROGRAM ELEMENTS

### LIGHTING & MIRRORS

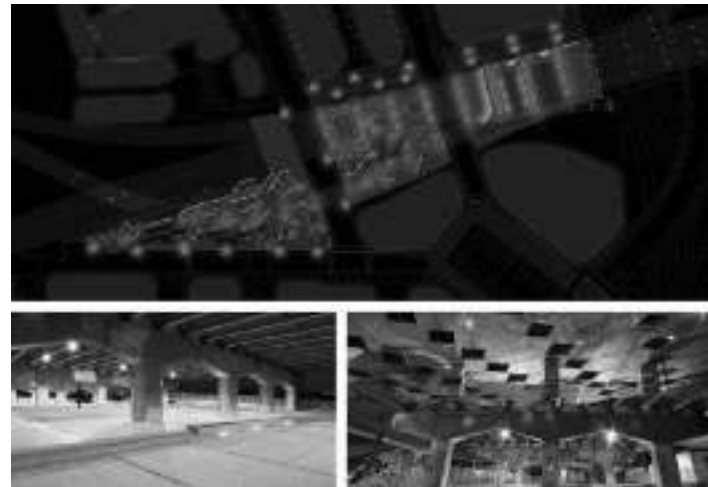


Figure 2.38

### SEATING & NATIVE PLANTINGS



## ARTWORK & RECREATION



# PRECEDENT STUDIES

## KENSINGTON STREET

**LOCATION:** Sydney, Australia

**FIRM:** Turf Studio & Jeppe Aagaard Anderson

**DATE:** Completed in 2015

### HISTORIC CULTURE



### STREETScape



Figure 2.39



Figure 2.40



Figure 2.41

Designed by Turf Studio and Jeppe Aagaard Andersen, this streetscape is located in Sydney, Australia. **Like my capstone site, this area has a strong cultural history and sense of place.** This project helped renovate the street, while also enhancing and highlighting this areas unique sense of place. I would like to do just this with my own streetscape in Milwaukee, to promote the manufacturing district's culture, while also enhancing the aesthetic and atmosphere of St. Paul street.

# REGIONAL ANALYSIS

- 1. Location
- 2. Census Data
- 3. Districts
- 4. Transportation
- 5. Bodies of water
  - a. Watersheds
  - b. Flood plains
- 6. Parks

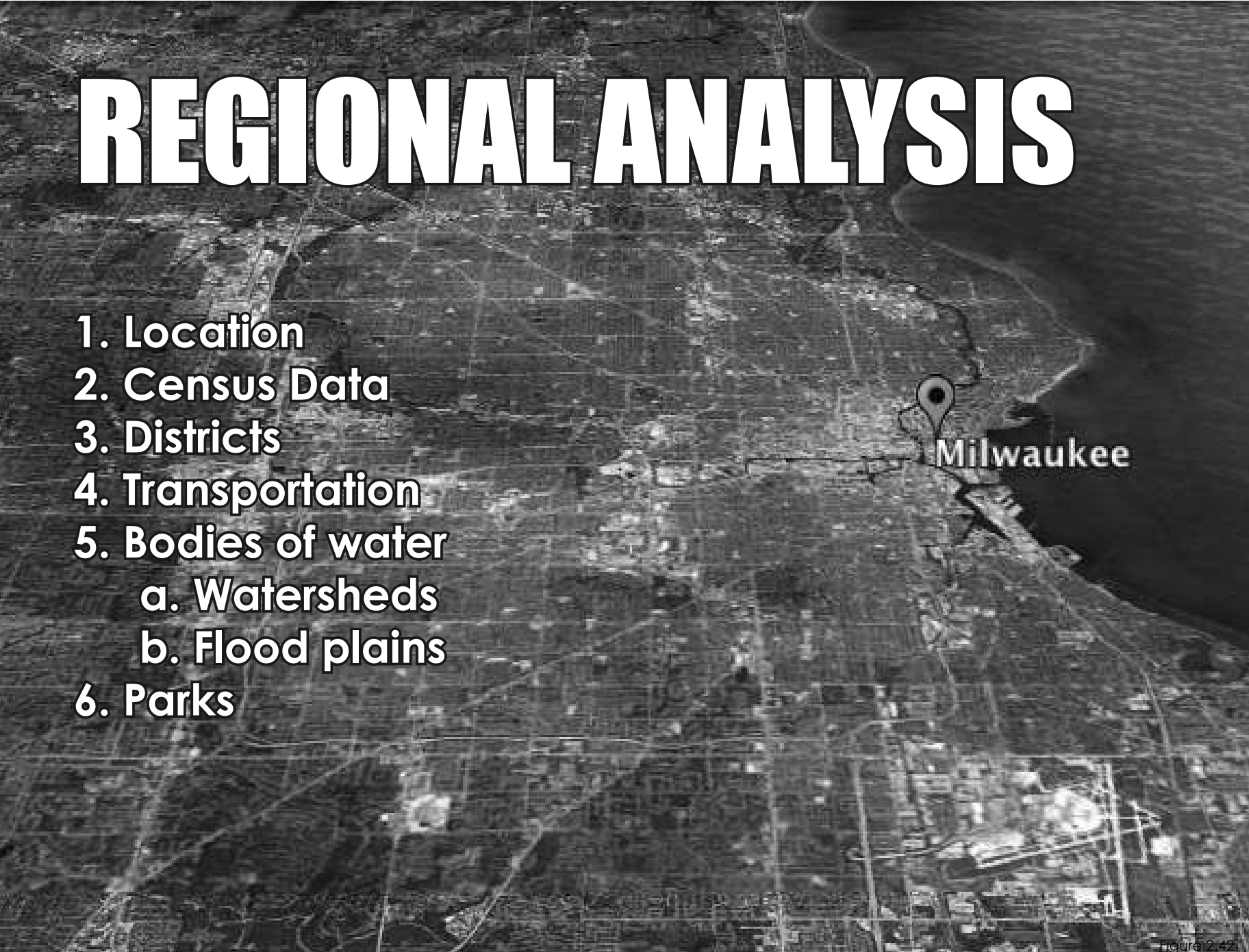


Figure 2.42

# CITY OF MILWAUKEE

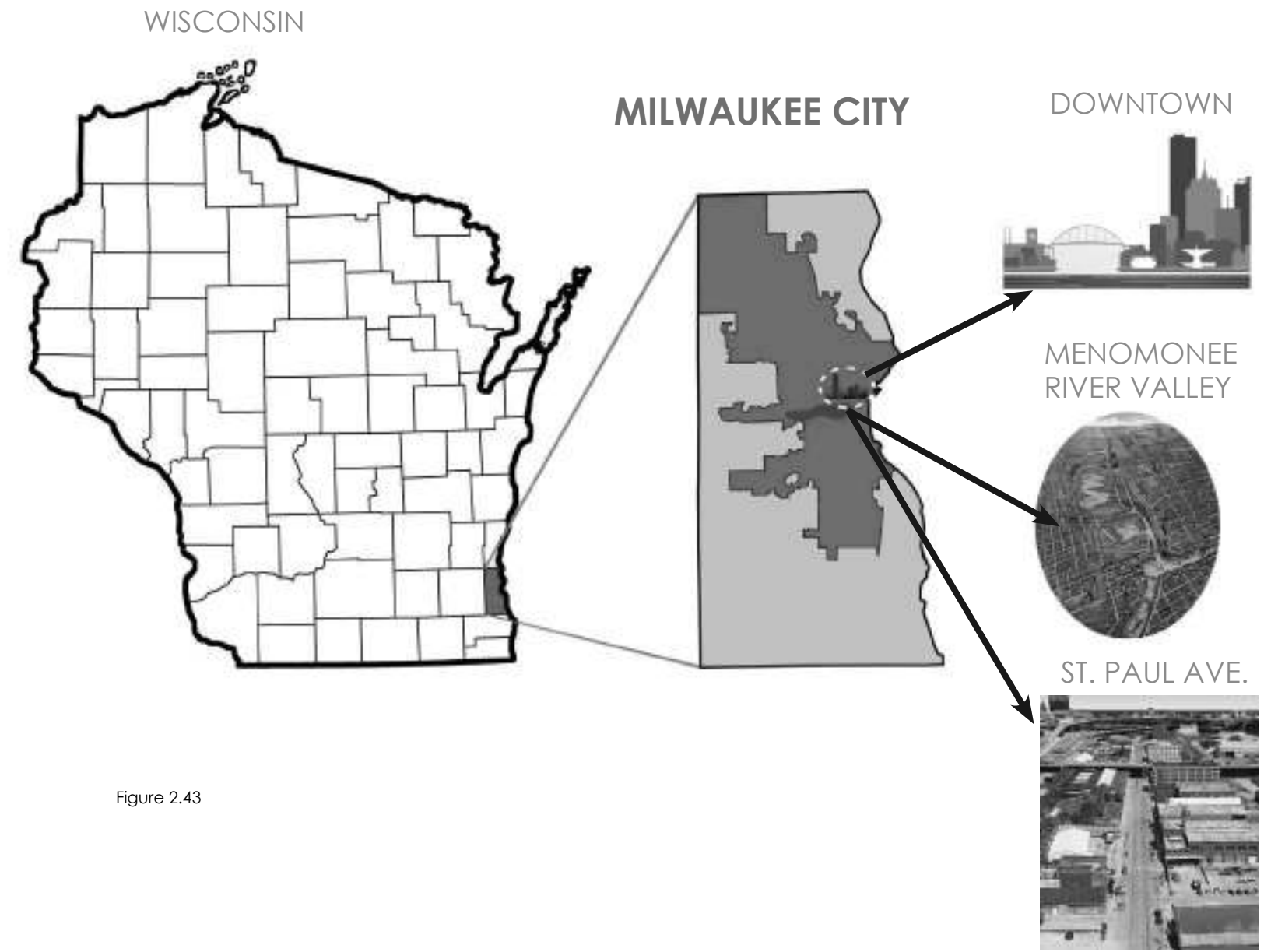


Figure 2.43

# CITY OF MILWAUKEE

## POPULATION DENSITY 2010

**MEAN DENSITY: 8908.97**

**MEDIAN AGE: 27 YEARS OLD**

From this map you can see where higher pockets of population density lie within the city of Milwaukee. The central area of the city around downtown has the highest amount of density, while the surrounding areas fade out.

### Menomonee Valley:

- Manufacturing district
  - Located on the Menomonee River
- = LOW DENSITY**



Figure 2.44

# CITY OF MILWAUKEE

## RACE DATA 2010

Milwaukee has a long history of segregation that has not progressed much over the years, due to discriminatory zoning codes and systematic oppression. This can be obviously seen in the 2010 map at right

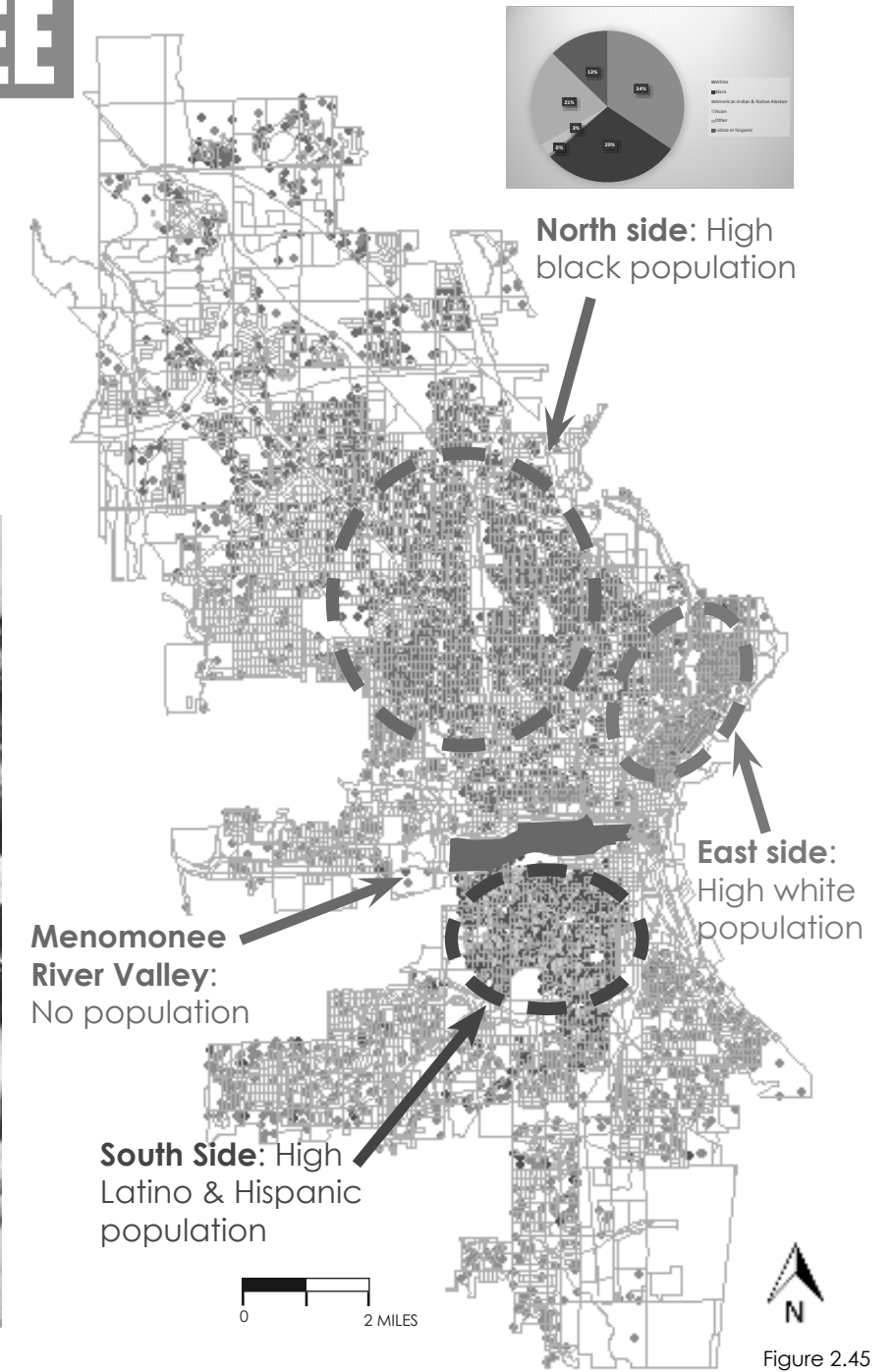


Figure 2.45

# NEIGHBORHOODS

## MENO. RIVER VALLEY

My project site is located in this area.

- **Businesses:** manufacturing & commercial
- **Residential population:** 0
- **User range:** valley workers; Potawatami customers; Harley Davidson customers; Sobelman customers; Hank Aaron trail users; homeless people

## DOWNTOWN

My project site is located Southwest of this area

- **Businesses:** Mixed use development
- **Residential population:**
- **User range:** business workers; retail & commercial workers; government workers; shoppers; residents in/ nearby the area; boaters



Figure 2.46

## 3RD WARD

My project site is located West of this area.

- **Businesses:** high end mixed development
- **Residential population:**
- **User range:** retail & commercial workers; shoppers; residents of area

## MARQUETTE

My project site is located South of this area.

- **Businesses:** civic school buildings
- **Residential population:** students
- **User range:** students; professors; researchers; people touring the campus; downtown workers

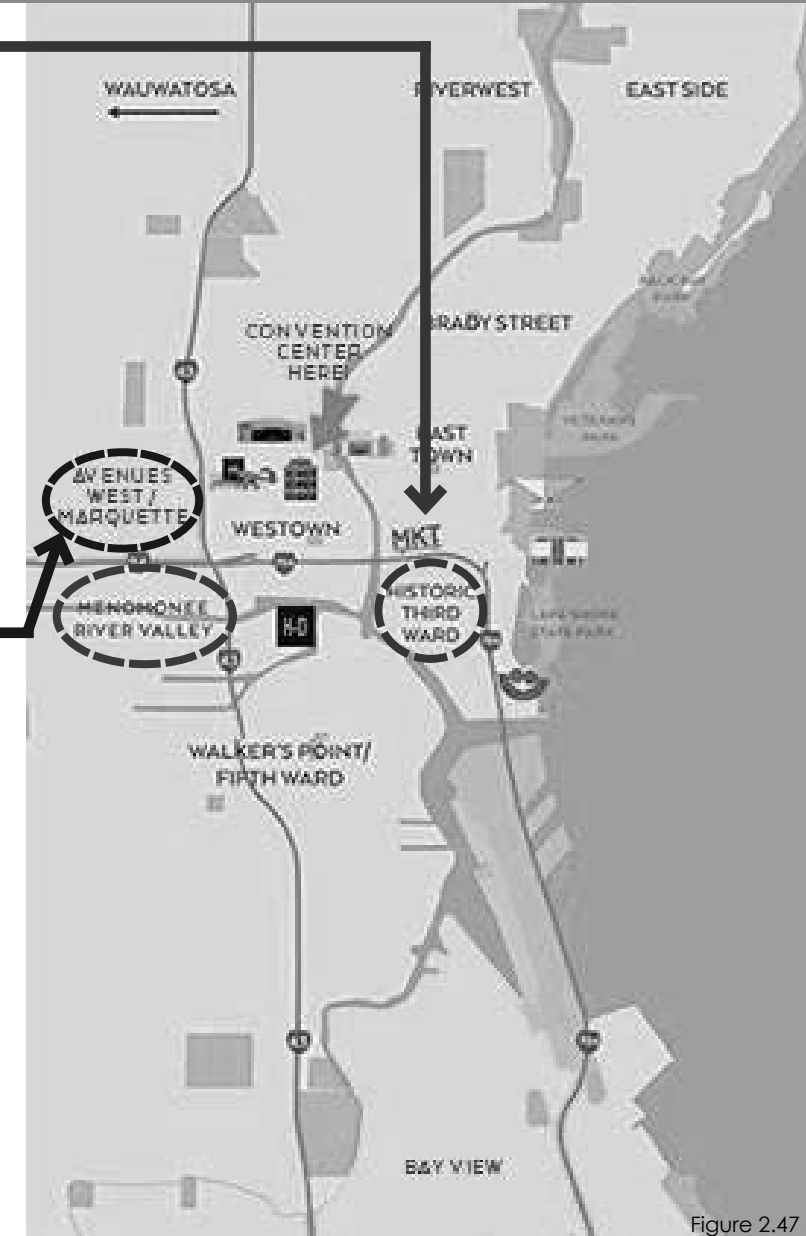


Figure 2.47

## TRANSPORTATION

Major highways:



Figure 2.48

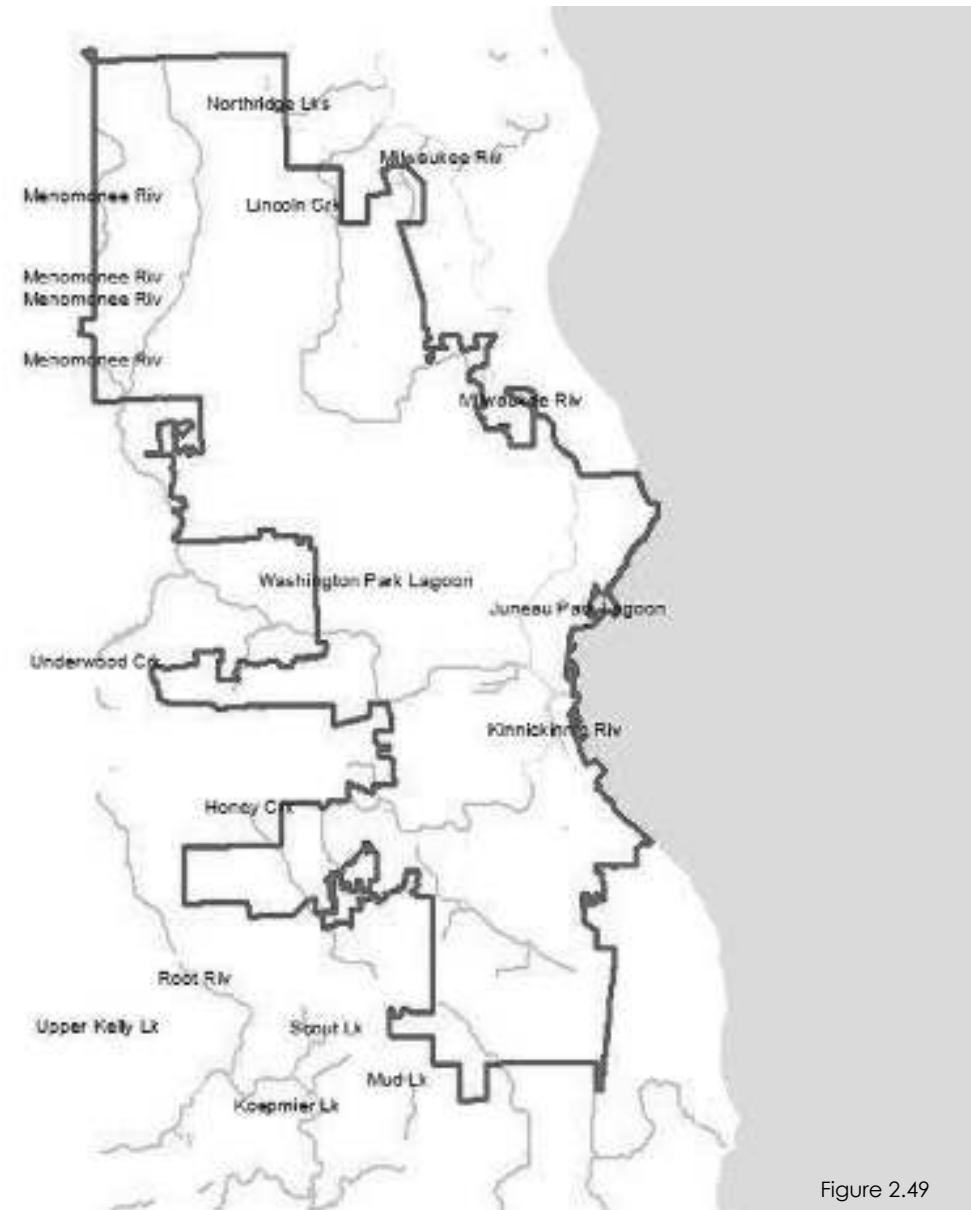


Figure 2.49

# COMMUNITY ANALYSIS

1. Location
2. Manufacturing District
  - a. Existing businesses
  - b. Users
3. Stormwater management
  - a. Flood Plains
  - b. Water Quality
  - c. Drainage basins

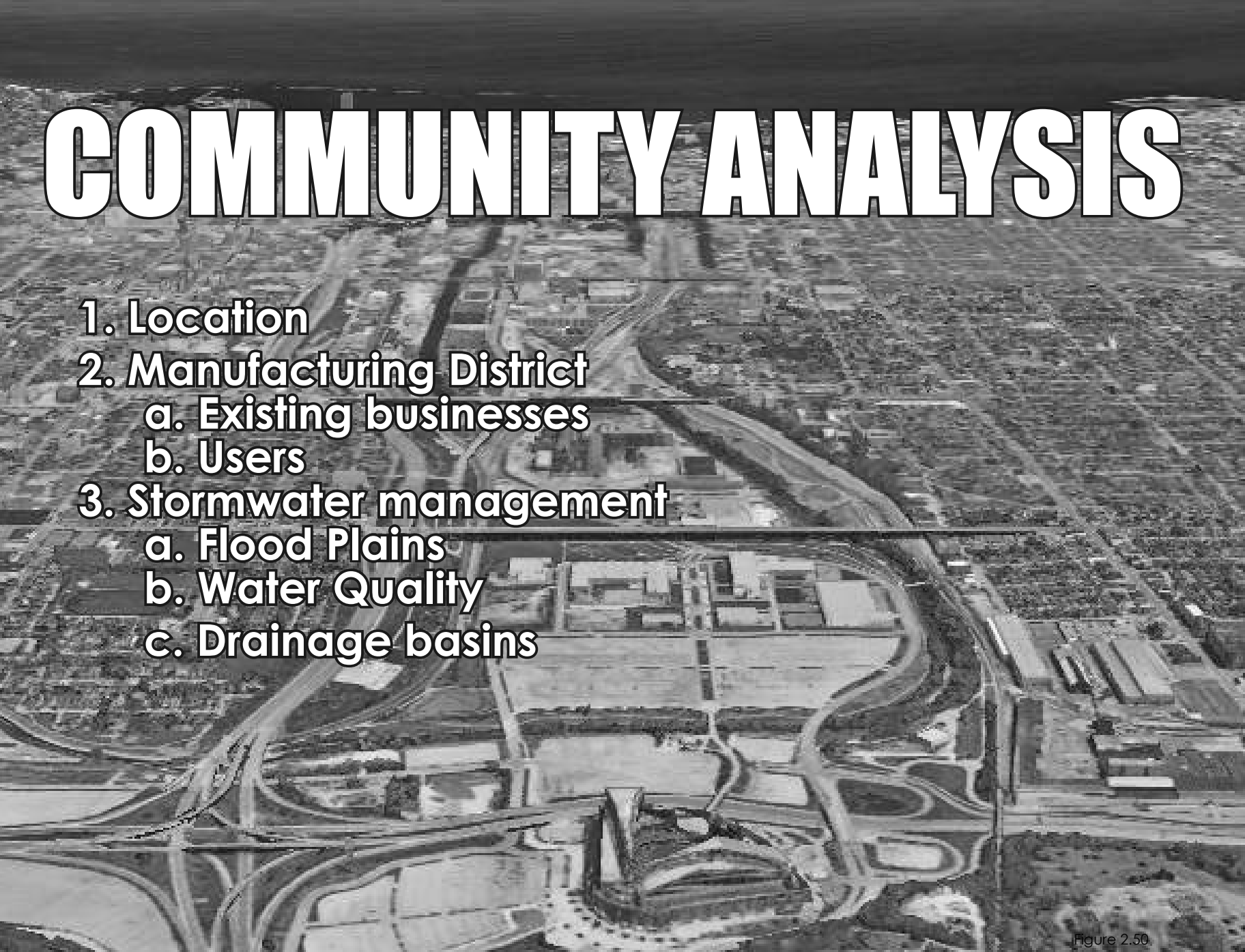
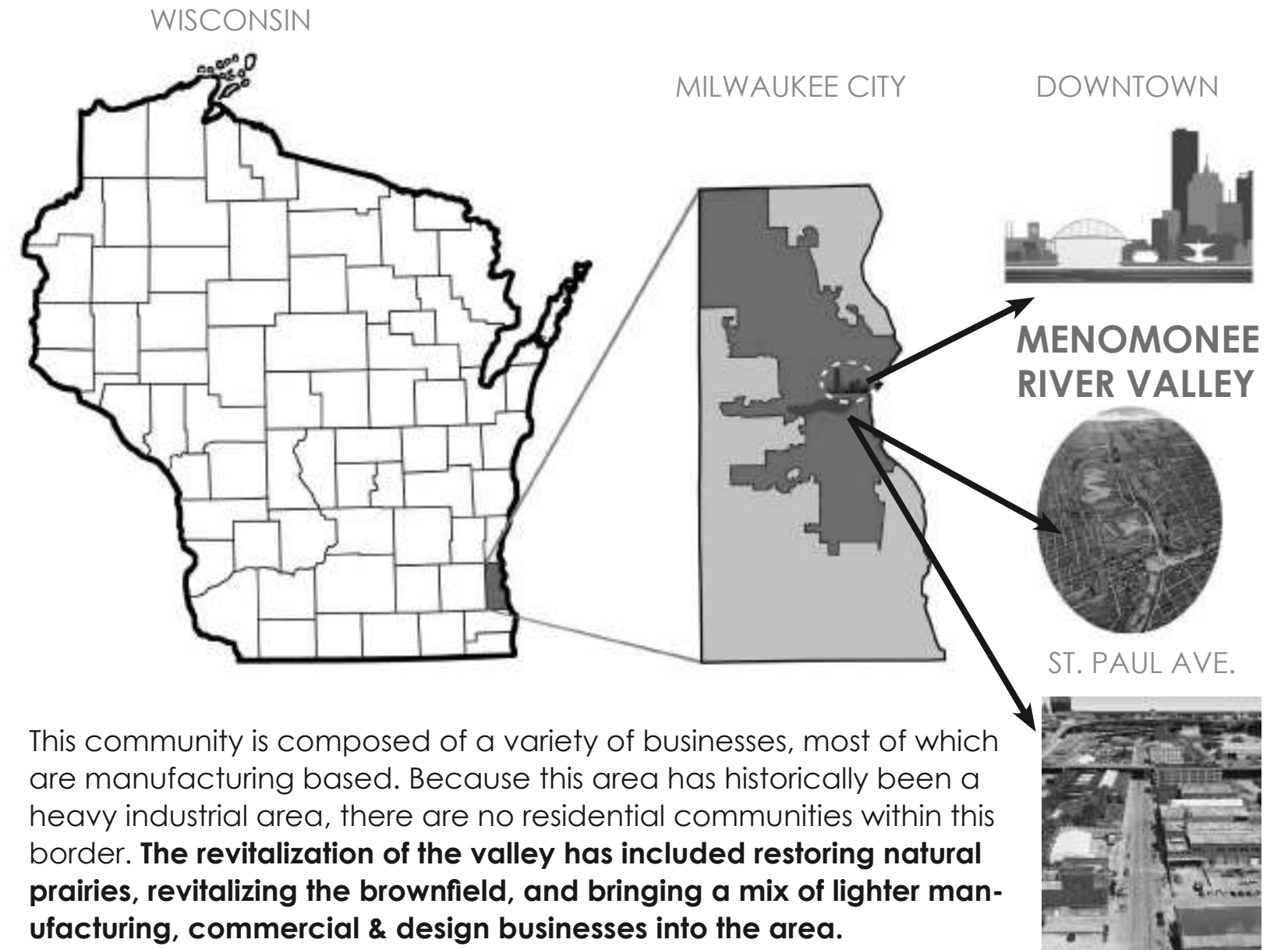


Figure 2.50

## MENOMONEE RIVER VALLEY



This community is composed of a variety of businesses, most of which are manufacturing based. Because this area has historically been a heavy industrial area, there are no residential communities within this border. **The revitalization of the valley has included restoring natural prairies, revitalizing the brownfield, and bringing a mix of lighter manufacturing, commercial & design businesses into the area.**



# MENOMONEE RIVER VALLEY

## PRIME LOCATION

- **Great highway visibility:**
  - 150,000 cars on I-94 & I-43 Daily
- **Amtrak station** is on St. Paul Ave; couple blocks from site location
- **Many abandoned buildings for lease or sale:**
  - 11,000-98,500 Sq. Ft. for sale & 4,500-50,000 sq. ft. for lease

## EXISTING BUSINESSES →

### MANUFACTURING BUSINESSES

- JM Brennen
- BBC Lighting
- House of Stone
- Mitchell furniture
- Materion Advanced chemicals
- Bay View Packing
- St. Mary's Cement
- Buzzi Unicem
- AIS (Allied insulation Supply)
- Cargill Meat Solutions
- Pittsburg Glasswork
- Proletic Inc
- MTI Connect
- Brass Light Gallery
- Rexnord

### DESIGN BUSINESSES

- BBC Gallery
- Bill Doran
- Zimmerman Architectural Studios, Inc
- Brass Light Gallery
- Harwood Engineering consultant
- House of Stone
- Landworks

### PUBLIC SITES

- Harley Davidson Museum
- 4 Seasons Skate Park
- Potawatami Hotel & Casino
- Marquette camps & Rec Fields
- The Domes
- Bonkerz Comedy club

### FOOD & DRINK

- Sobelman's
- 3rd Space Brewery
- Dream Dance Steak
- The Fire Pit sports bar and grill
- Motor Bar & restaurant
- Twisted Fisherman crab shack

### STORAGE

- EZ Self Storage
- Armour self storage



Figure 2.51



# MENOMONEE RIVER VALLEY

## MANUFACTURING BUSINESSES

This area has been a heavy manufacturing district for almost a century, and therefore has little to no residential areas. However over recent years, there has been a **transition to more light industry jobs, greener businesses, and restoration of degraded and polluted brownfields.**



Figure 2.52

### Heavy industry

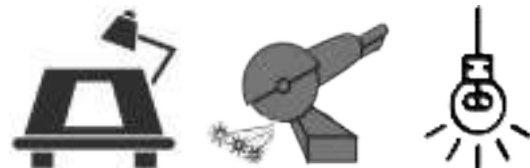
- High pollution
- Contaminated river
- Degraded industrial sites
- No residential



Figure 2.53

### Industrial Commercial

- Reduction in pollution
- Storm water management
- Public use of land
- Greener businesses
- Mixed use development



## EXISTING BUSINESSES



# MENOMONEE RIVER VALLEY

## USERS

- Manufacturing workers
- Sobelman's customers
- Homeless people
- Runners
- Business owners



### BENEFITS OF A MANUFACTURING DISTRICT

- Higher paying jobs
- Local economic growth
- Brings attention to vacant & blighted properties
- Job security
- Potential to expand success of 3rd ward
- Anchor businesses already in place

### DRAWBACKS OF A MANUFACTURING DISTRICT

- Pollution
- Harder to draw people to area
- Abandoned buildings that people don't want to invest in
- Unfriendly streetscapes
- High percentage impervious surfaces
- Spaces too big for average user

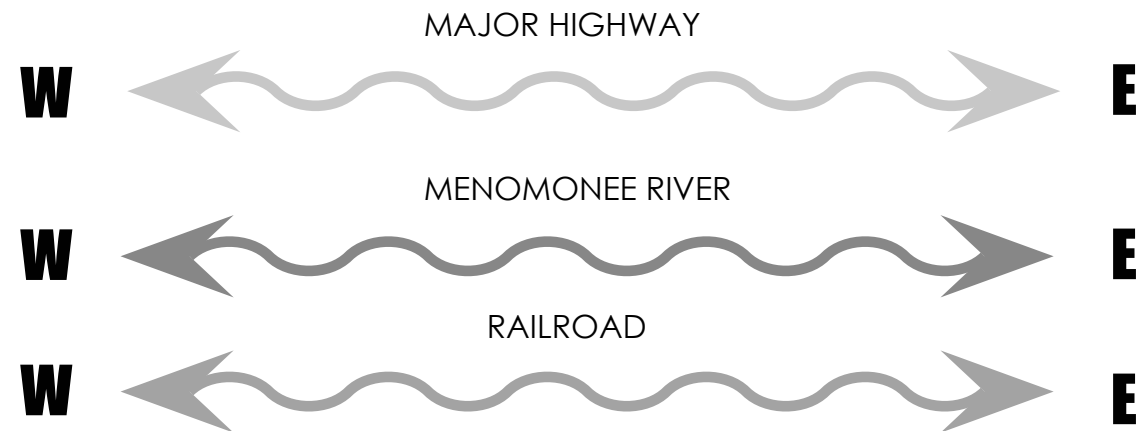
Figure 2.54

# MENOMONEE RIVER VALLEY

## LINEAR FLOWS



Figure 2.55



## WATER QUALITY

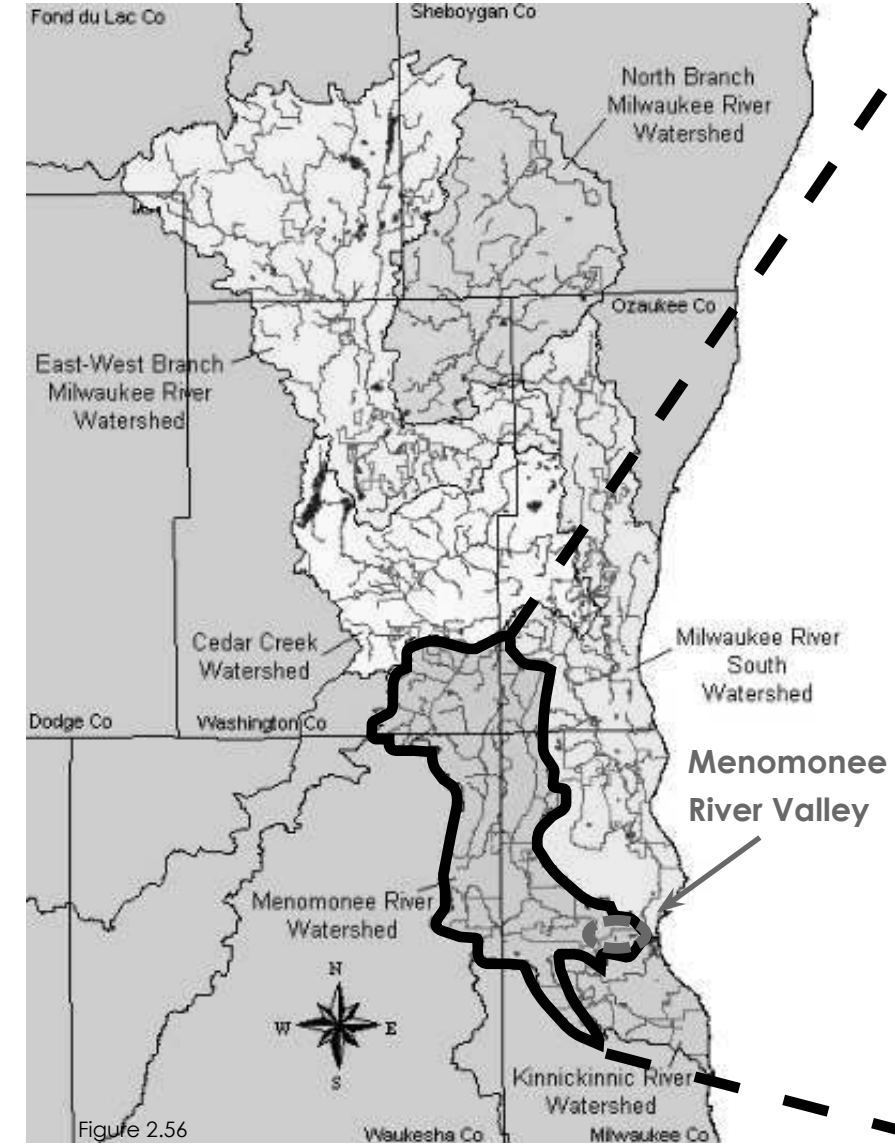
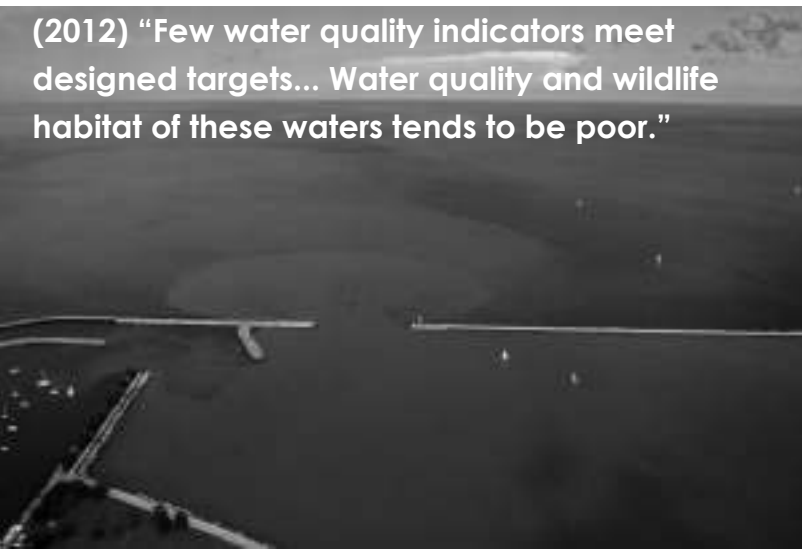


Figure 2.56

**Menomonee River Basin:**  
 (1998-2001) Fecal coliform levels in the Menomonee River exceeded water quality standard in 38% of samples.

Biggest contributor= stormwater runoff

Menomonee River Keeper Grade= **D**



(2012) "Few water quality indicators meet designed targets... Water quality and wildlife habitat of these waters tends to be poor."





# MENOMONEE RIVER VALLEY

## FLOODPLAIN ZONES



Figure 2.57

### Flood Hazard Zones

-  1% Annual Chance Flood Hazard
-  Regulatory Floodway
-  Special Floodway
-  Area of Undetermined Flood Hazard

## DRAINAGE BASINS

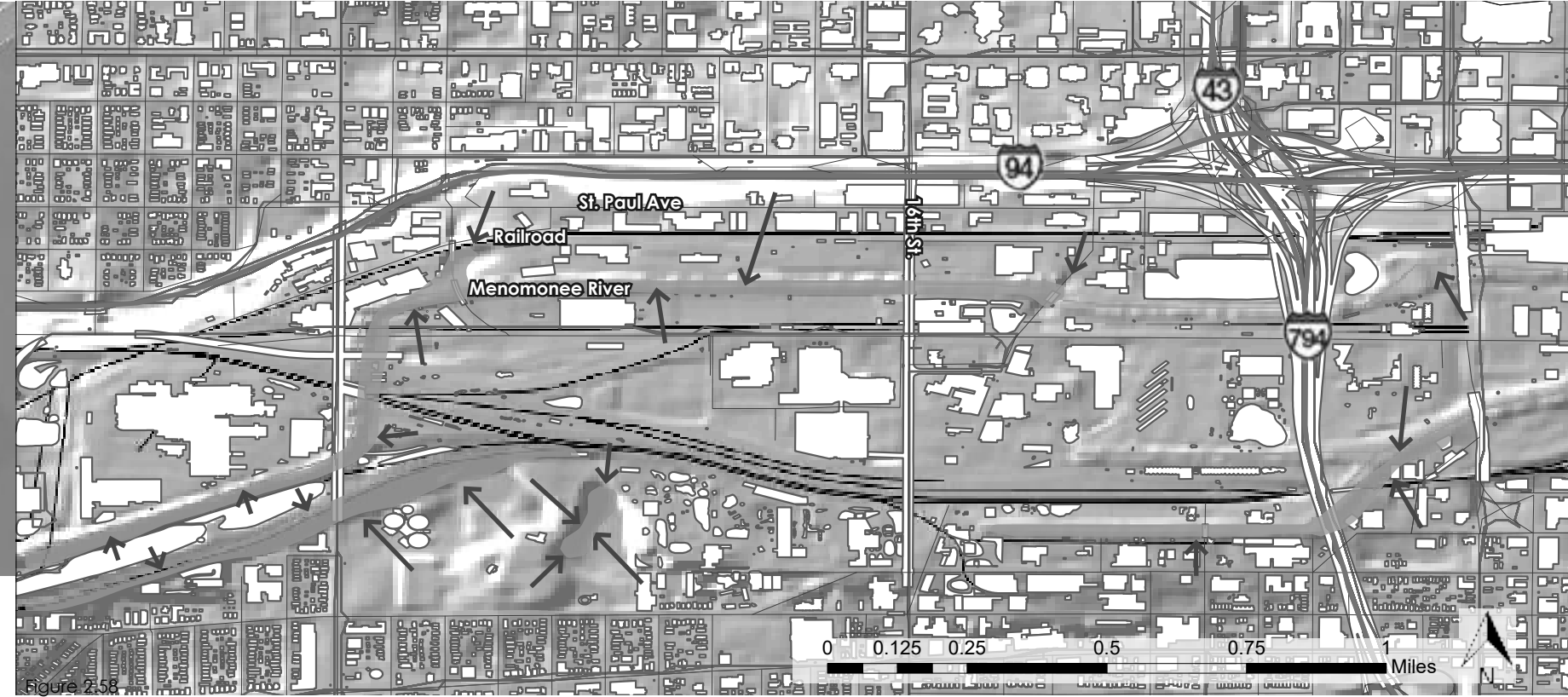


Figure 2.58

-  MAJOR HIGHWAYS
-  RIVERS
-  BUS ROUTES
-  HILL SHADE (10 METERS)  
0 254
-  WATER FLOW DIRECTION
-  WATER POOLING AREAS

# SITE ANALYSIS

1. Location & Amenities
2. Circulation & Users
3. Land Use
4. Storm water management
5. Zones
  - a. Opportunities
  - b. Constraints
6. Design concepts

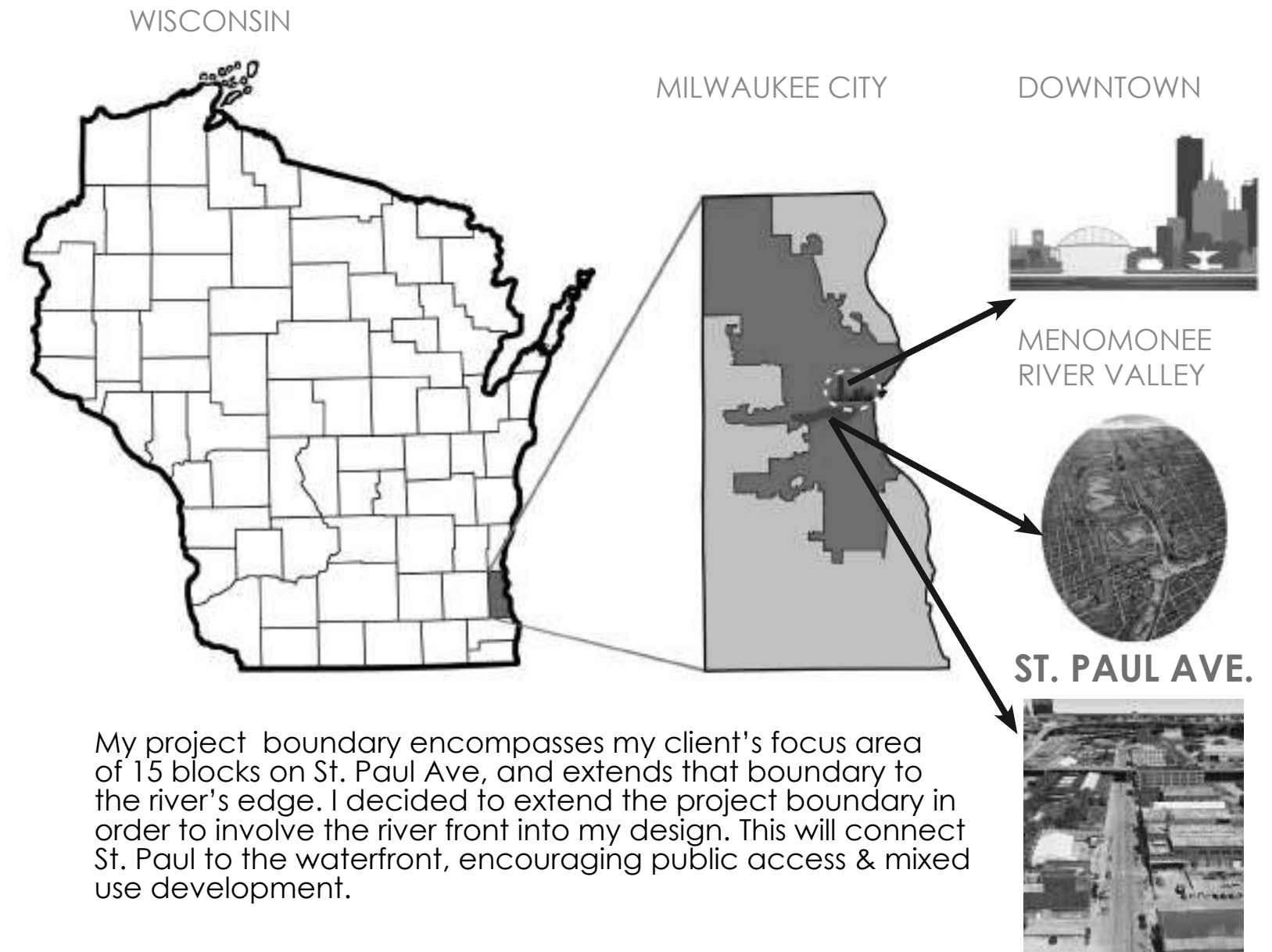
*Size: 143 Acres*

*Location: North of Menomonee River, West of Lake Michigan*

*No residential population*

Figure 2.59

## ST. PAUL AVE



My project boundary encompasses my client's focus area of 15 blocks on St. Paul Ave, and extends that boundary to the river's edge. I decided to extend the project boundary in order to involve the river front into my design. This will connect St. Paul to the waterfront, encouraging public access & mixed use development.

# ST. PAUL AVE

## AMENITIES

- ① Marquette University
- ② Milwaukee Intermodal Station
- ③ Harley Davidson Museum
- ④ Potowatami Hotel & Casino
- ⑤ Historic Third Ward
- ⑥ Mitchell Park
- ⑦ Miller Park
- ⑧ 3 Bridges Park

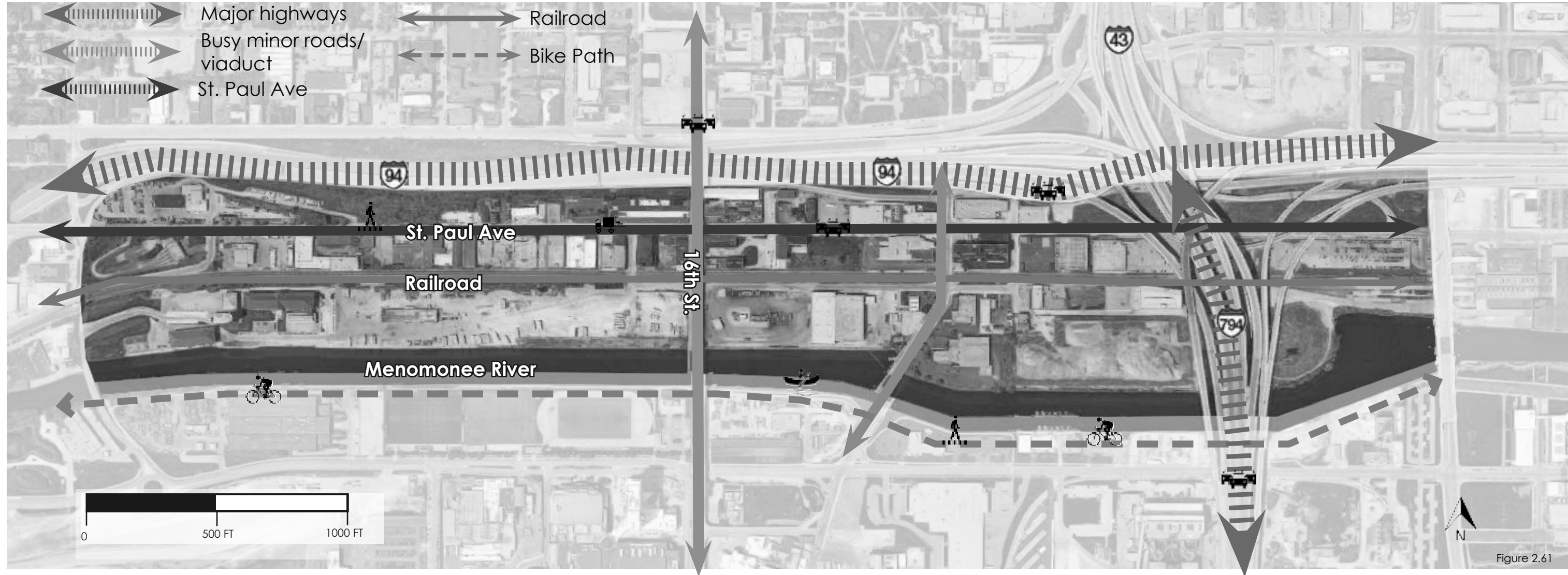


Figure 2.60



# ST. PAUL AVE

## CIRCULATION



Foot traffic



Bike traffic



Vehicular traffic



Semi-truck traffic



Boat traffic

Figure 2.61

# ST. PAUL AVENUE

## LAND USE

■ Retail & Sales

■ Gov. Buildings

■ Storage

■ Gov. roads & parking

■ Manufacturing & industrial

■ Open space

■ Freeway

■ Roads



- **Mostly manufacturing & design businesses**
- **Only a couple pockets of vegetation & green spaces**

Figure 2.62



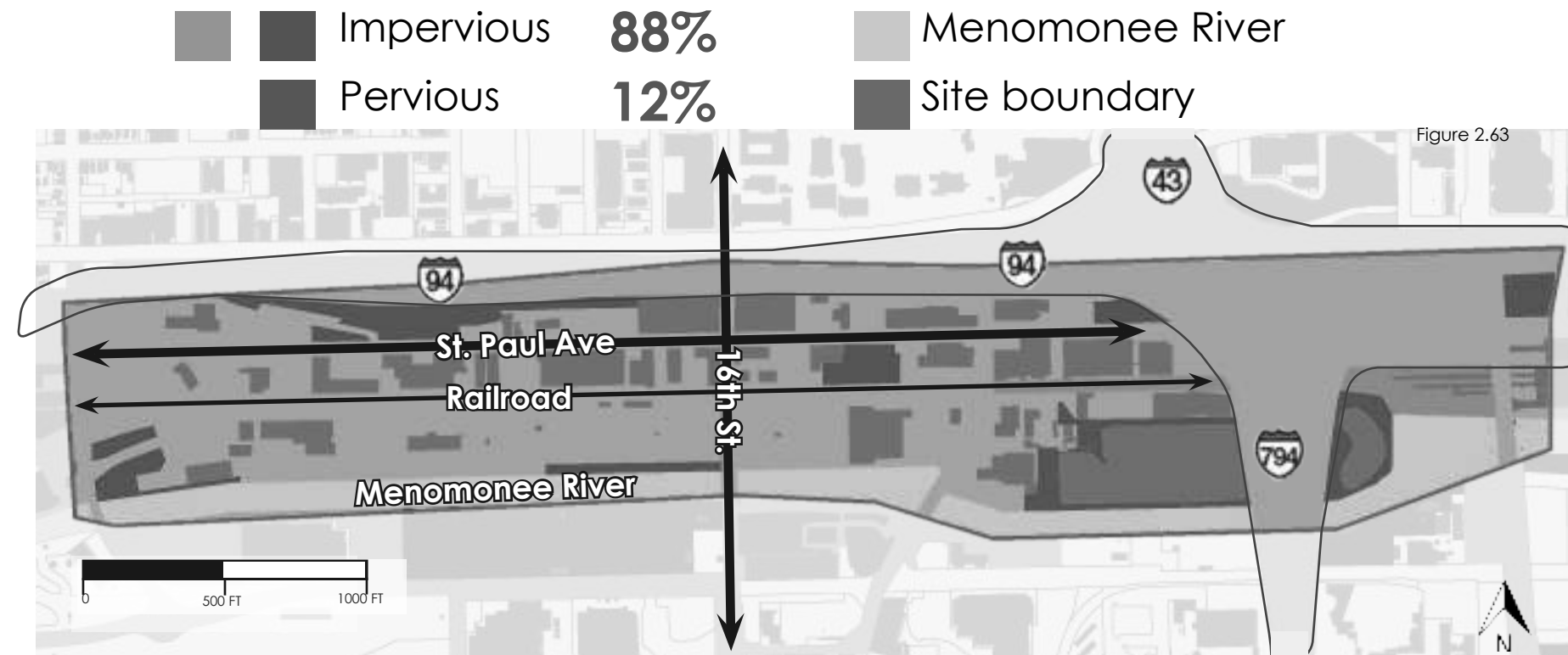
# ST. PAUL AVENUE

## STORMWATER MANAGEMENT

The soils on the site are classified as “urban soils,” but have not been further classified. Since my site is apart of a brownfield and has been a historically heavy industrial/ manufacturing site, the soil is most likely contaminated and compacted.



This site consists of mostly buildings and paved lots and roads. Only a fraction of this site has vegetation, and even these areas have been compacted and probably aren't very pervious.



- **Mostly buildings, paved lots & roads.**
- **Small fraction of vegetation**
  - Even green spaces are compacted & not very pervious.

# ST. PAUL AVENUE

## ZONES

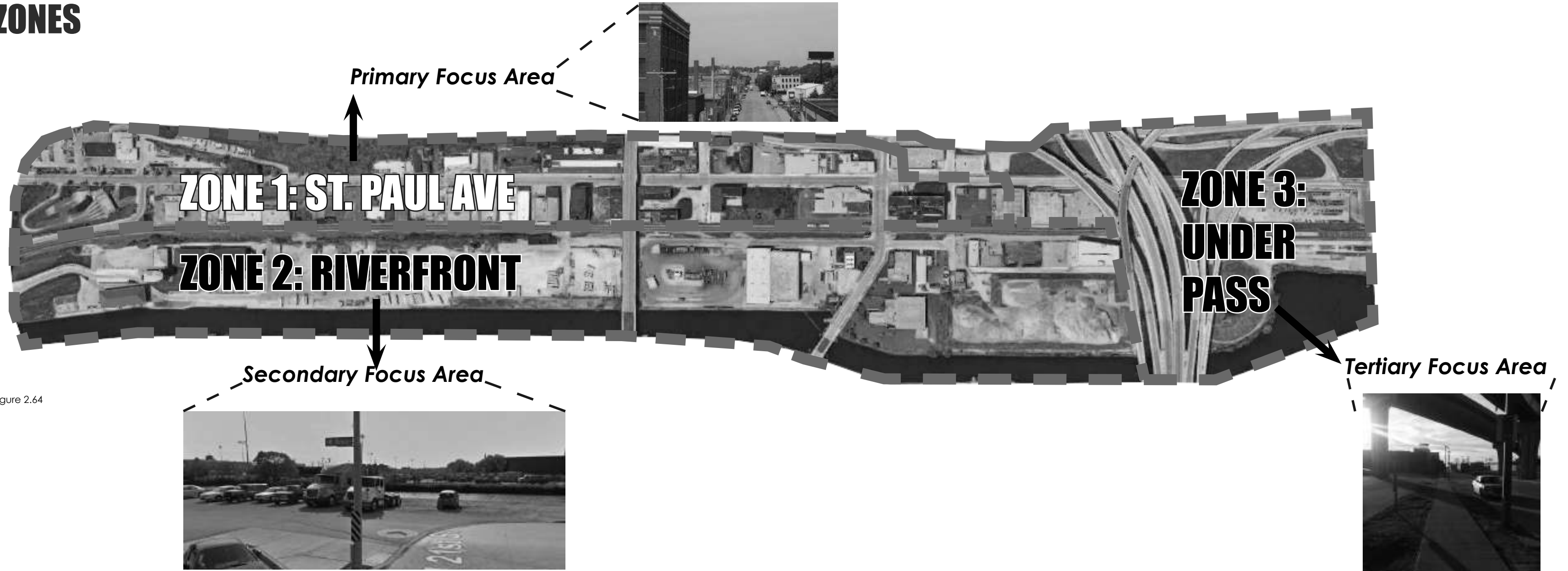


Figure 2.64

# ST. PAUL AVENUE

## ZONE 1: ST. PAUL AVE



Figure 2.65

### OPPORTUNITIES

- Historic buildings can be repurposed into mixed use properties
- Businesses can advertise products through storefront & parklets

### CONSTRAINTS

- Narrow corridor
- Abandoned looking storefronts
- Heavy vehicle traffic
- Unsightly viaducts



Figure 2.66

## ECOLOGICAL CONSIDERATIONS & HISTORIC INDUSTRIAL CULTURE



## ZONE 1: PRECEDENT STUDY

**PROJECT:** Pabst Brewery Redevelopment  
**LOCATION:** Milwaukee, WI  
**FIRM:** Multiples firms  
**PROJECT SIZE:** 21 Acres  
**DATE:** 2007-present



# ST. PAUL AVENUE

## ZONE 1: UNSUCCESSFUL AREAS

1601 West St. Paul



Figure 2.67

Street needs to be repaved.  
Opportunity to add pervious paving.

=

**UNFRIENDLY  
STREET SCAPE**



Variety of window panes reveals that building is most likely abandoned

+

Weeds & fencing add to unfriendly street atmosphere

=

## 16th Street Viaduct



Figure 2.68



Opportunity to add lighting and graffiti art/ murals

+

Ugly barbed fencing adds to unwelcoming atmosphere

=

**UNFRIENDLY  
STREETSCAPE**

# ST. PAUL AVENUE

## ZONE 1: SUCCESSFUL AREAS

### BBC Light Gallery Store-



Lights displayed in upper window adds interesting aesthetic at all levels

Store front display of plants. Green nicely sets off brick building.

Showcasing business products in aesthetic window canvas image.

Figure 2.69



Attractive building facade with restored original brick & black awnings.



Outdoor seating creates sense of place & enhances feeling of safety, and human scale.

Figure 2.70

### Sobelman's Restaurant



Hanging plants & planters encourages more visitors & adds color to dull streetscape.

Figure 2.71

# ST. PAUL AVENUE

## ZONE 2: THE RIVERFRONT



### OPPORTUNITIES

- Create public access to river front
- Recreational opportunities
- Mirror revitalization efforts on South south of river
- Mixed use development along river

### CONSTRAINTS

- Many vacant lots & storage areas
- Limited public access along water
- Heavy traffic, unsightly viaducts



# ST. PAUL AVENUE

## ZONE 2: UNSUCCESSFUL AREAS



Figure 2.72

Riverfront: **under utilized and undervalued**

**Opportunity for bike/ pedestrian paths and more vegetation.**



Figure 2.73

Large **impervious** storage and parking lot area. **No vegetation & feels like private** property.

Riverfront is **underutilized and undervalued**. Opportunity for **mixed use** development and **recreation**.

# ST. PAUL AVENUE

## ZONE 2: SUCCESSFUL AREAS



Figure 2.74

Large open space leaves opportunity for community pocket park, recreation area and gateway to the riverfront



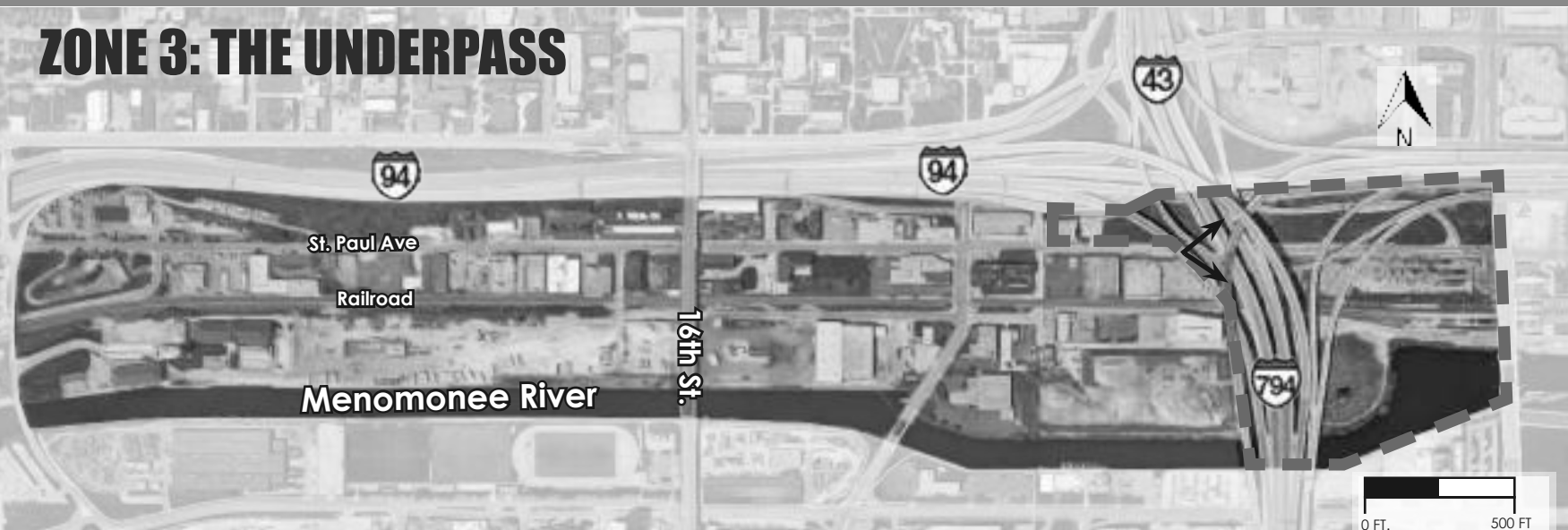
Figure 2.75

Restored Prairie on South side of River: opportunity to mirror on North side.



# ST. PAUL AVENUE

## ZONE 3: THE UNDERPASS



### OPPORTUNITIES

- Art and lighting
- Rain garden
- Recreation options
- Connect to Amtrak station

### CONSTRAINTS

- Homeless population
- Not pedestrian friendly
- Compacted soil
- Low foot traffic

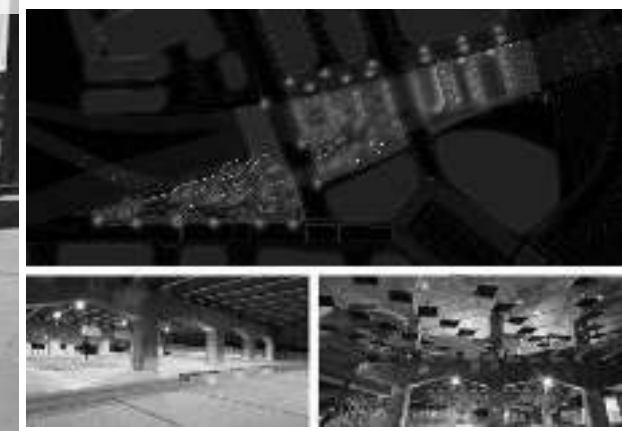


## ZONE 3: PRECEDENT STUDY

**PROJECT:** Underpass Park  
**LOCATION:** Toronto, ON, Canada  
**FIRM:** PFS Studio & The Planning Partnership  
**DATE:** 2016



### LIGHTING & MIRRORS



### SEATING & NATIVE PLANTING



### ARTWORK & RECREATION



# ST. PAUL AVENUE

## ZONE 3: UNSUCCESSFUL AREA



Lots of shade from overpass: **opportunity for lighting**

**Lots of empty lots with impervious paving**



**Large impervious lot** in front of storage building; opportunity to add vegetation & pervious paving

# ST. PAUL AVENUE

## ZONE 3: SUCCESSFUL AREA



Newly planted row of ginkgo tree will increase canopy cover on site

Some native plantings; opportunity to add more

Figure 2.78



Figure 2.79

Newly planted trees and lawn space: enhances aesthetic of non-pedestrian friendly overpass

# ST. PAUL AVENUE

## DESIGN CONCEPT 1: POROUS CONNECTIONS

- Mixed use & retail
- Design & manufacturing business
- Civic infrastructure
- Parking lot
- Restored natural area
- Recreational
- Pedestrian corridor
- Existing viaduct

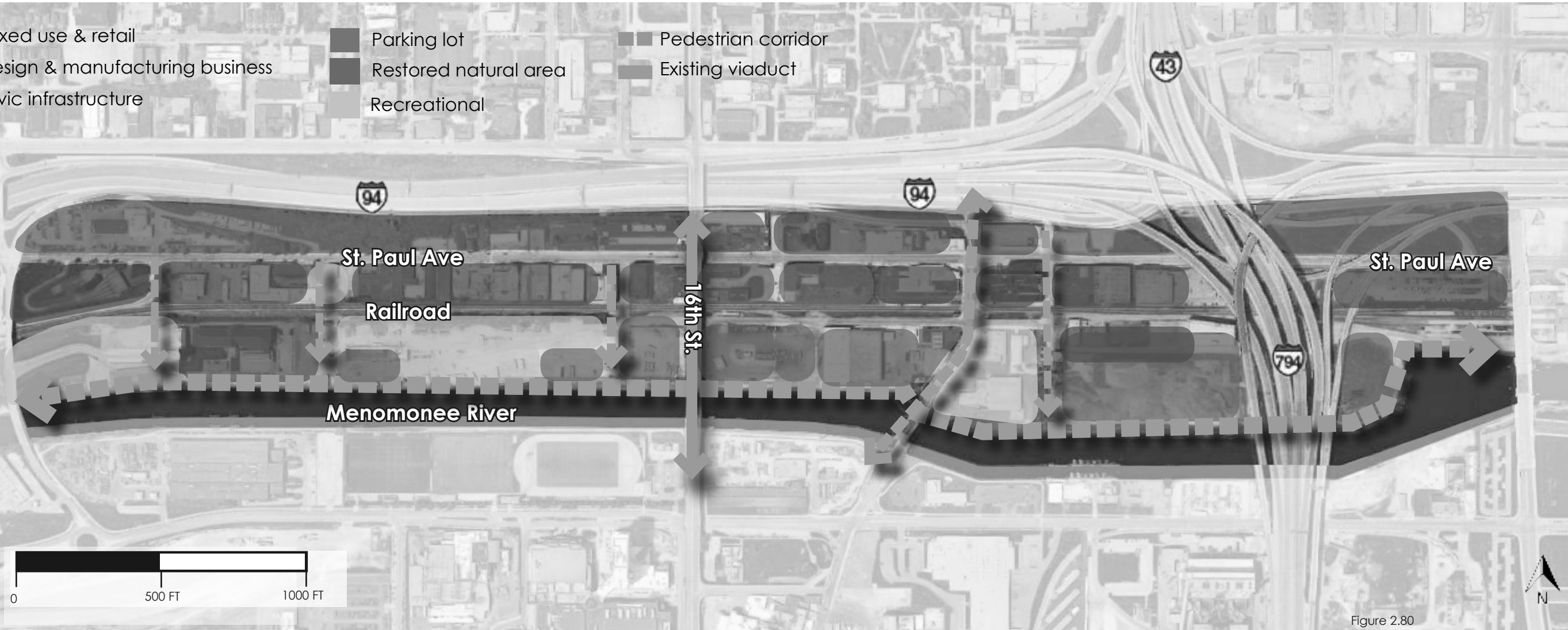
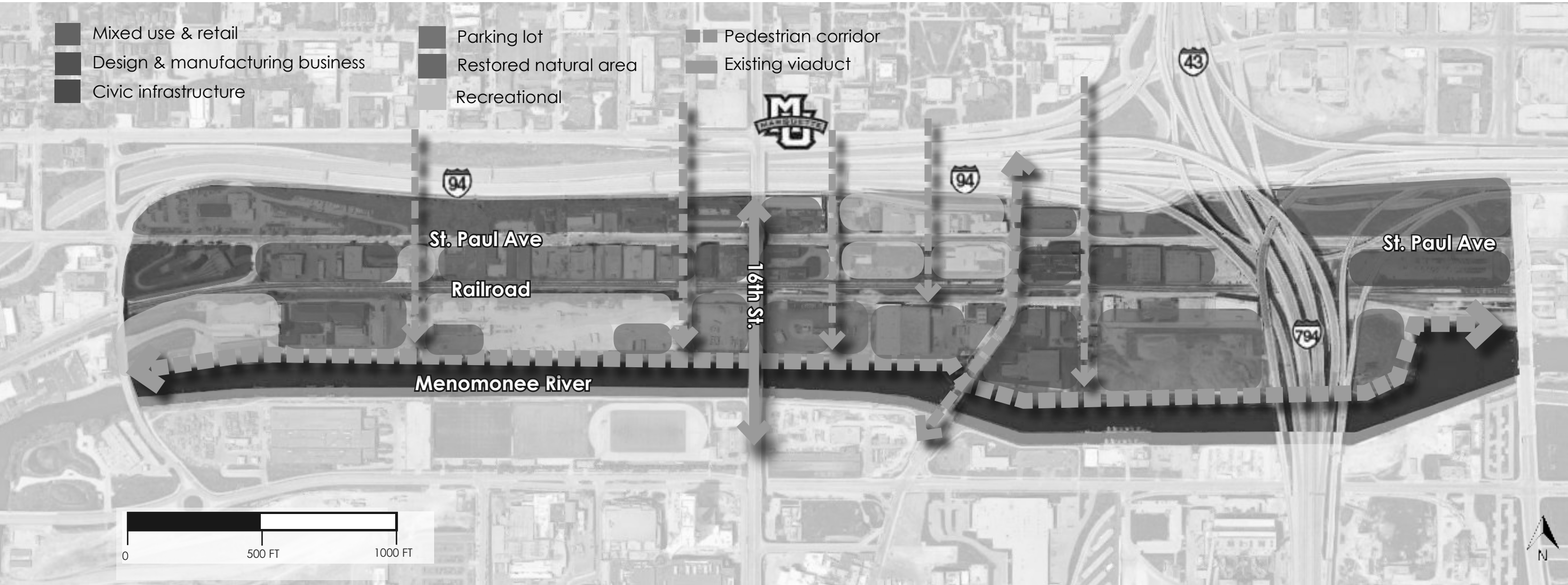


Figure 2.80

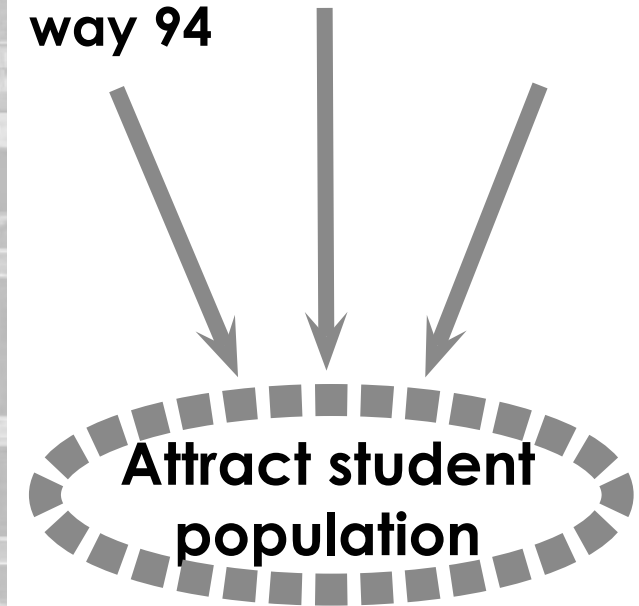
- Pedestrian corridors --> **encourage public access to the river.**
- Restaurants along river --> **draw more people; increase accessibility**
- 3 Story mixed development along 16th street viaduct--> **create connection between elevation levels**

# ST. PAUL AVENUE

## DESIGN CONCEPT 2: MARQUETTE CONNECTION

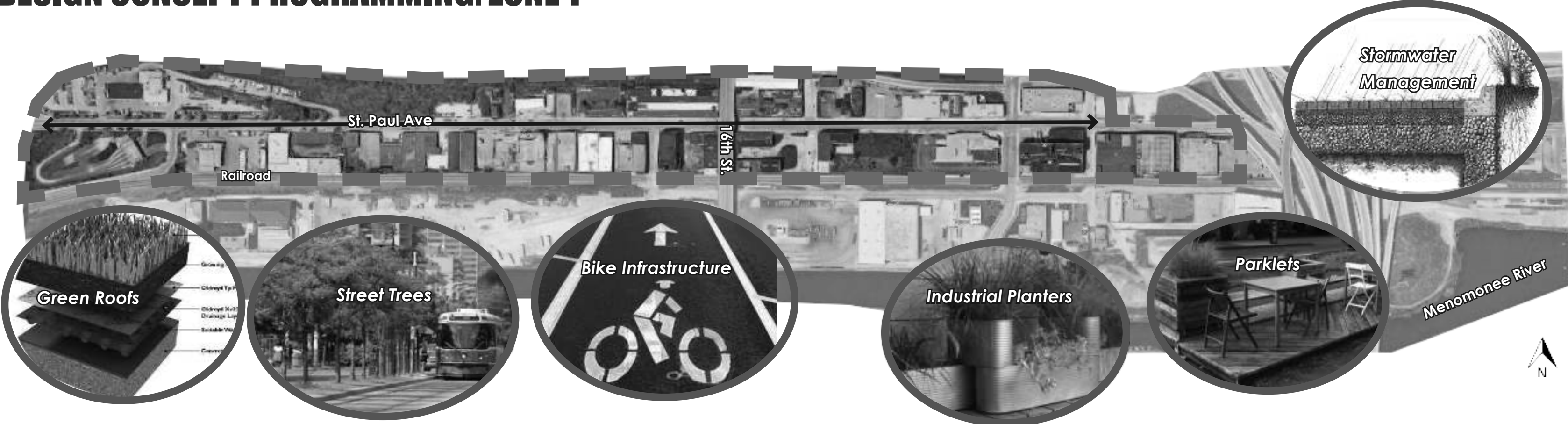


- More rec spaces
- Residential options
- More restaurant & bars
- **Pedestrian friendly corridors under highway 94**



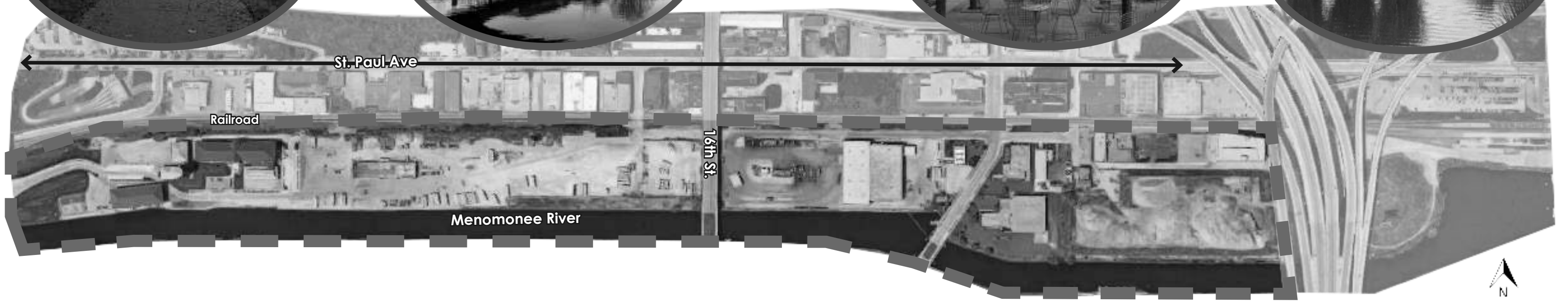
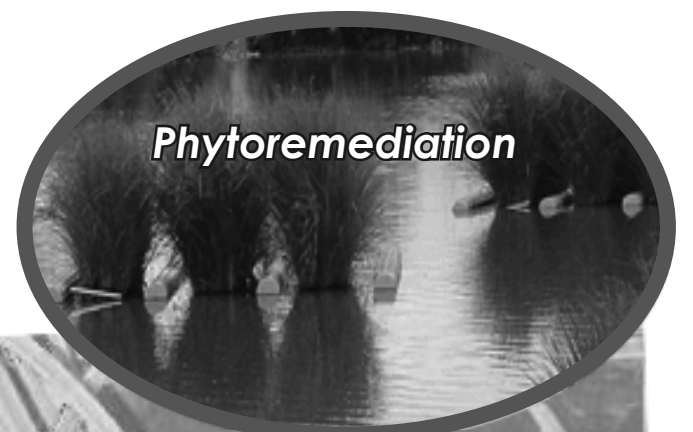
# ST. PAUL AVENUE

## DESIGN CONCEPT PROGRAMMING: ZONE 1



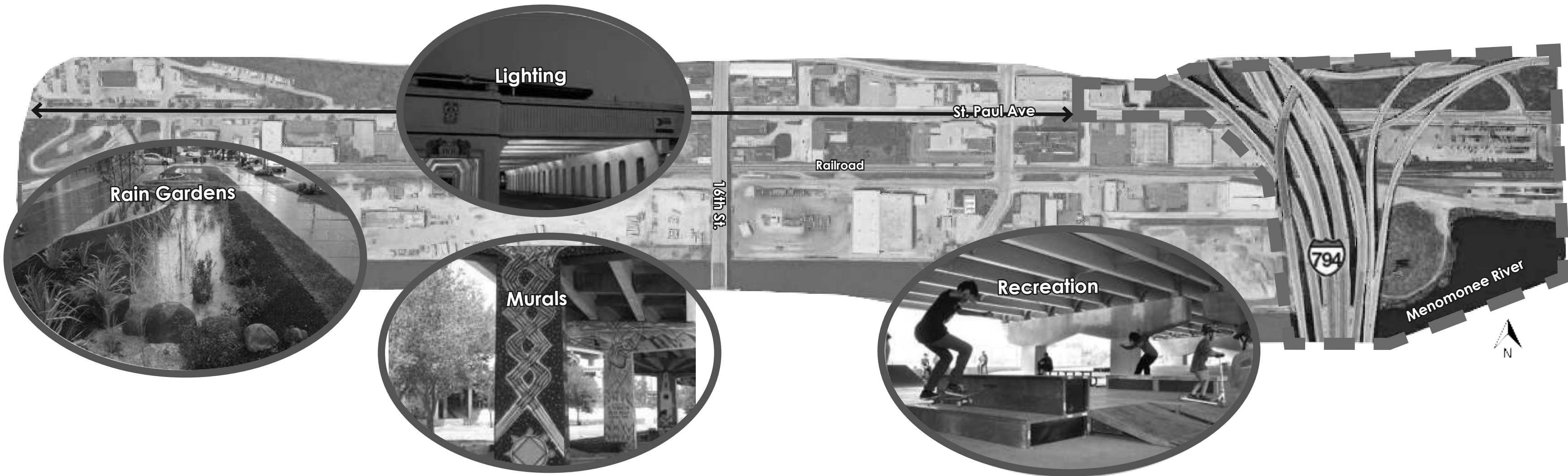
# ST. PAUL AVENUE

## DESIGN CONCEPT PROGRAMMING: ZONE 2



# ST. PAUL AVENUE

## DESIGN CONCEPT PROGRAMMING: ZONE 3





# CONCLUSION

## EVALUATION CRITERIA

### 1. Ecological Goals:

- Reduce stormwater runoff by 30%; reuse & recycle on site water
- Increase canopy cover by 50%

### 2. Social Goals:

- Analysis uses history of site to make informed decisions that preserve the past
- Increase on site foot traffic by 25%
- Showcase student & community art

### 3. Economic Goals:

- Decrease amount of abandoned buildings on site by 50%
- Increase incentive for businesses to use greener practices & restore storefronts
- Add mixed use development



Based on past readings, assignments, classes and job experiences, I'll do my best to ensure the health, safety and welfare of the community and my client. I will do this by staying in contact with my client throughout the whole process, and making informed design decision based on my knowledge and experience.

## 2ND SEMESTER GOALS

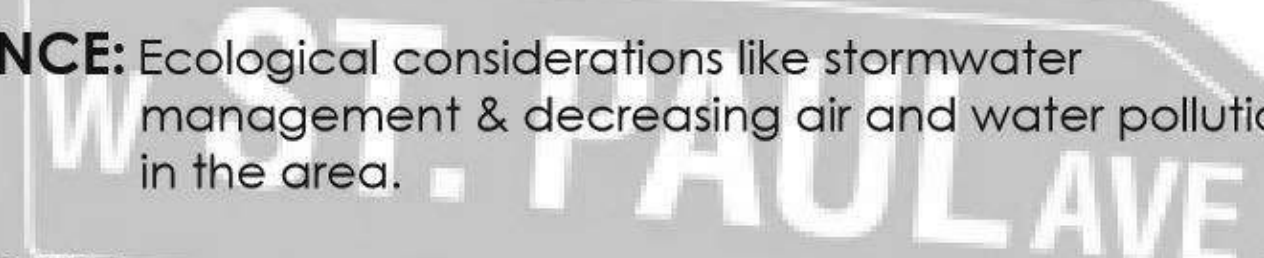
*Successful analysis* → *Help guide careful design solutions and programming next semester*



**PROMOTE:** Strong historic culture & greener practices.

**ENHANCE:** Ecological considerations like stormwater management & decreasing air and water pollution in the area.

**GENERATE:** Creative, functional & aesthetically pleasing design solutions.





**1. STRENGTHEN REGIONAL CONNECTIONS**

**2. INCREASE AND ENHANCE GREEN INFRASTRUCTURE**

**3. IMPLEMENT PHASING STRATEGY**





## EXISTING

## PROPOSED



Figure 3.01



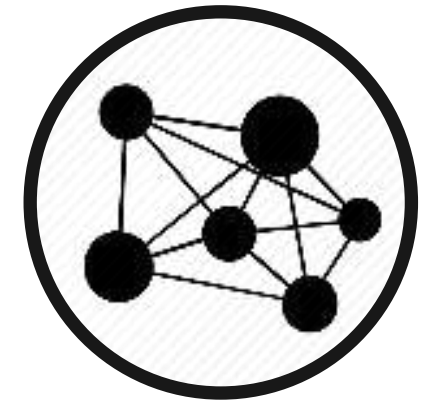
### DESIGN STRATEGY:

- MORE GREEN SPACE
- ENHANCED PEDESTRIAN EXPERIENCE



### DESIGN STRATEGY:

- INCREASED CONNECTIONS
- ENHANCED STREET CORRIDORS



# MASTER PLAN



## PROGRAMMING

- 1. St. Paul Avenue revitalized streetscape
- 2. 16th Street revitalized streetscape
- 3. Green roof terrace mixed use building
- 4. Phytoremediation park & education center
- 5. Mixed use building
- 6. Public park & gathering space
- 7. Recreational center with indoor & outdoor fields
- 8. River walk
- 9. Pedestrian bridge
- 10. Dog park



Figure 3.02

# MASTER PLAN



## REGIONAL CONNECTIONS

- ① Marquette University
- ② Milwaukee Intermodal Station
- ③ Harley Davidson Museum
- ④ Potowatami Hotel & Casino
- ⑤ Historic Third Ward
- ⑥ Mitchell Park
- ⑦ Miller Park
- ⑧ 3 Bridges Park



Rivers



Project Boundary



Hank Aaron State trail





## STRENGTHEN REGIONAL CONNECTIONS

### EXISTING:

1. ISOLATED
2. NOT PEDESTRIAN FRIENDLY
3. NO RESIDENTIAL POPULATION

### PROPOSED:

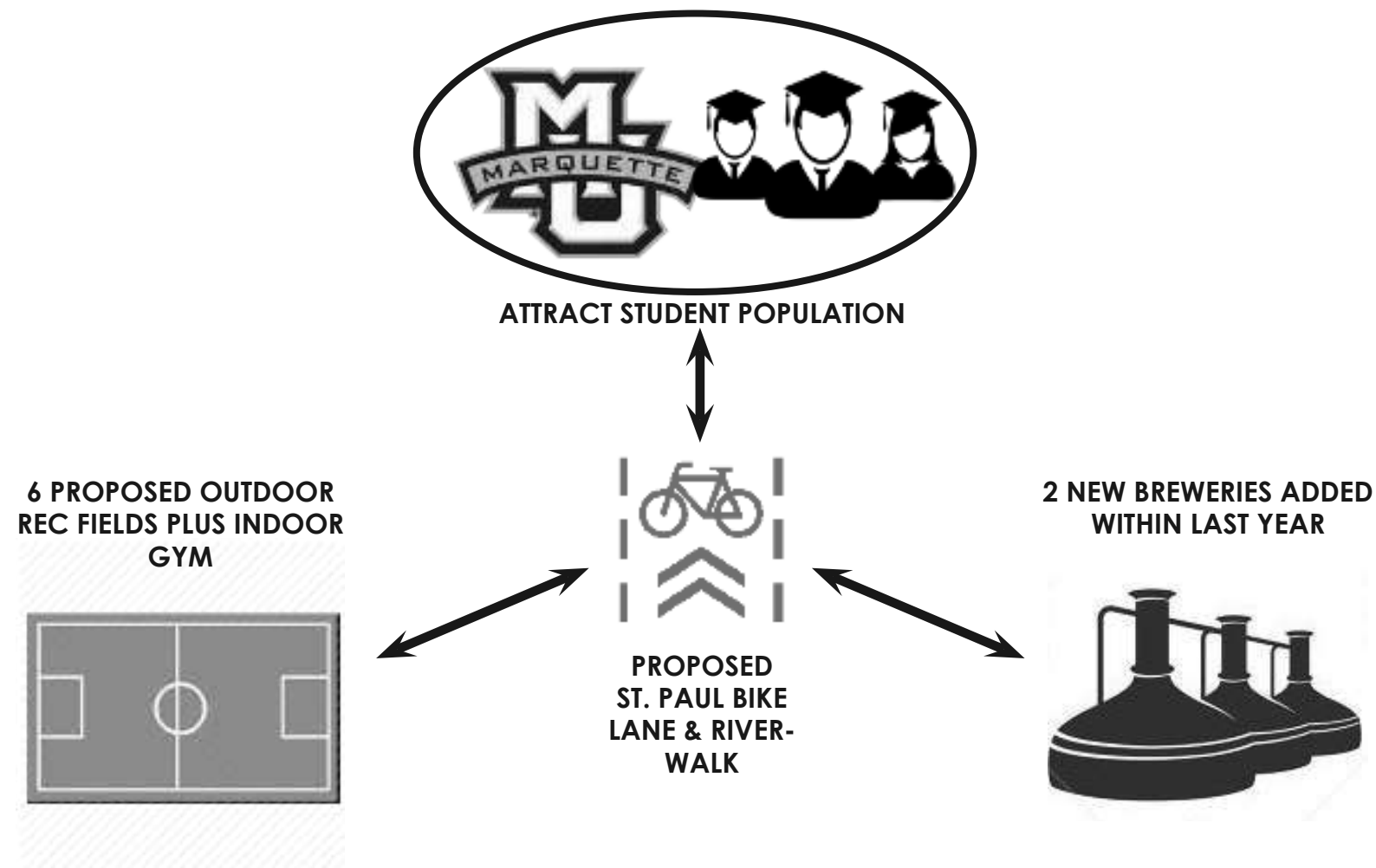
1. PEDESTRIAN & BIKER FRIENDLY
2. PROMOTE REGIONAL IDENTITY
3. OPPORTUNITIES FOR COMMUNITY INVOLVEMENT



### FOCUS:

- 1) MARQUETTE UNIVERSITY
- 2) HANK AARON STATE TRAIL

The proposed design will **increase the ease of access and number of access points to and from Marquette University**. The addition of bike lanes, rec fields & new breweries will **draw students** from around the area into the St. Paul Ave. area.



# MASTER PLAN



## STRENGTHEN REGIONAL CONNECTIONS: MU UNIVERSITY



- ① 16th Street Revitalization ↔
- ② Proposed Recreational Fields
- ③ Existing Recreational Fields
- ④ Proposed Mixed Use Buildings
- ⑤ 2 New Breweries



Figure 3.03



Figure 3.04





## STRENGTHEN REGIONAL CONNECTIONS: MU UNIVERSITY

### 1. 16th Street Revitalization


- Extended sidewalks + additional vegetation = **MORE PEDESTRIAN FRIENDLY STREETScape**
- Raised building elevators = **INCREASED BIKE ACCESSIBILITY TO ST. PAUL AVE.** 



Figure 3.05

### 2. Proposed Recreational Fields

- Addition of rooftop soccer & basketball fields = **EASY ACCESS FOR MU STUDENTS**
- Gym facility under soccer fields = **PUBLIC ACCESS FOR MU STUDENTS & OTHERS**
- Parking garage under basketball courts = **ACCESSIBLE FROM 16TH ST. OR ST. PAUL AVE.**



Figure 3.06





## STRENGTHEN REGIONAL CONNECTIONS: MU UNIVERSITY

### ③ Existing Recreational Fields

- 16th street revitalization = **BIKE & PEDESTRIAN ACCESS TO EXISTING MU FIELDS SOUTH OF RIVER**

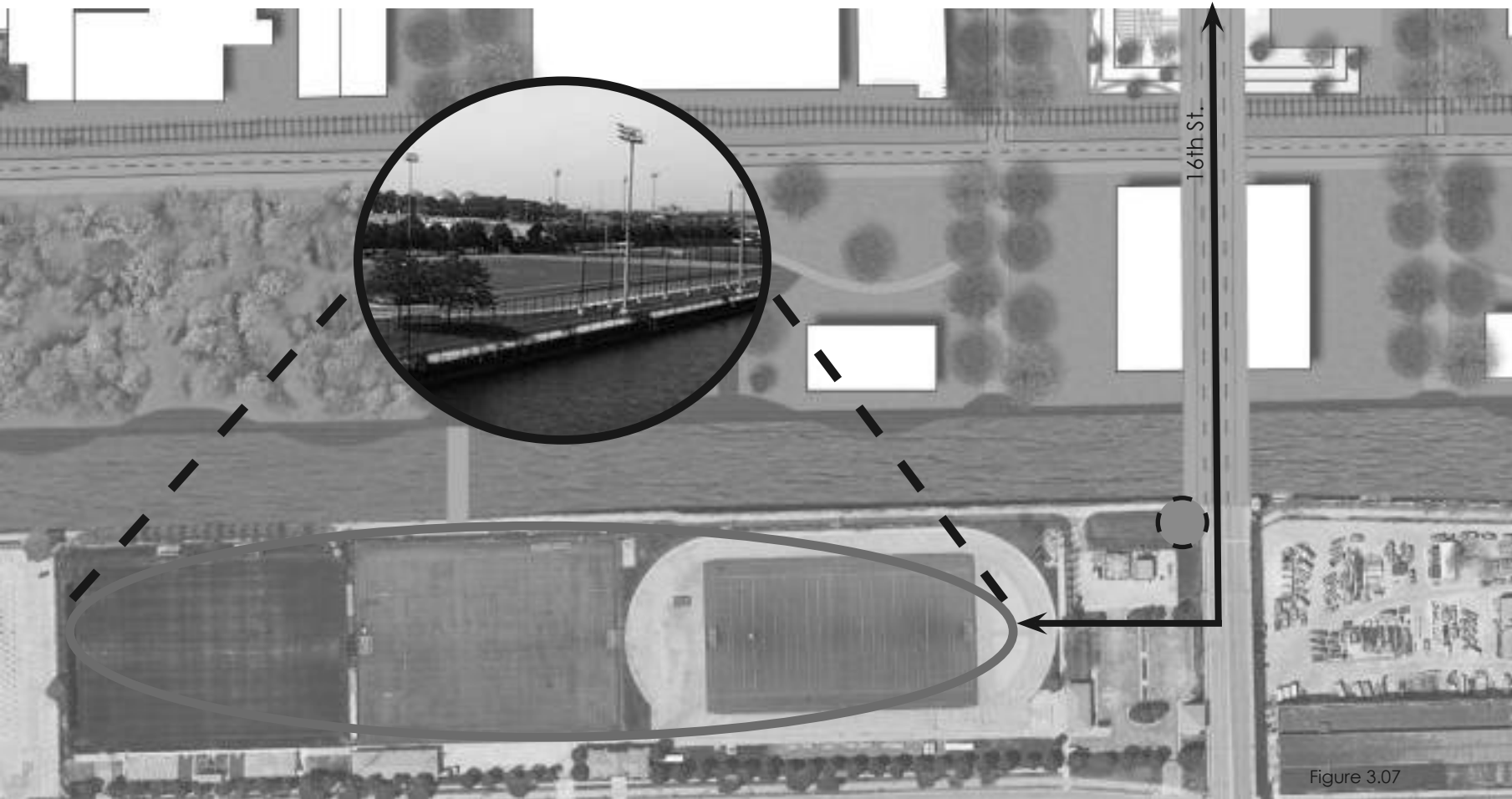


Figure 3.07

### ④ MIXED USE BUILDINGS

- Restaurants on the river = **ACCESSIBLE BY FOOT, BIKE OR BOAT**
- Mixed use buildings on 16th St. = **VIEW OF RIVER**

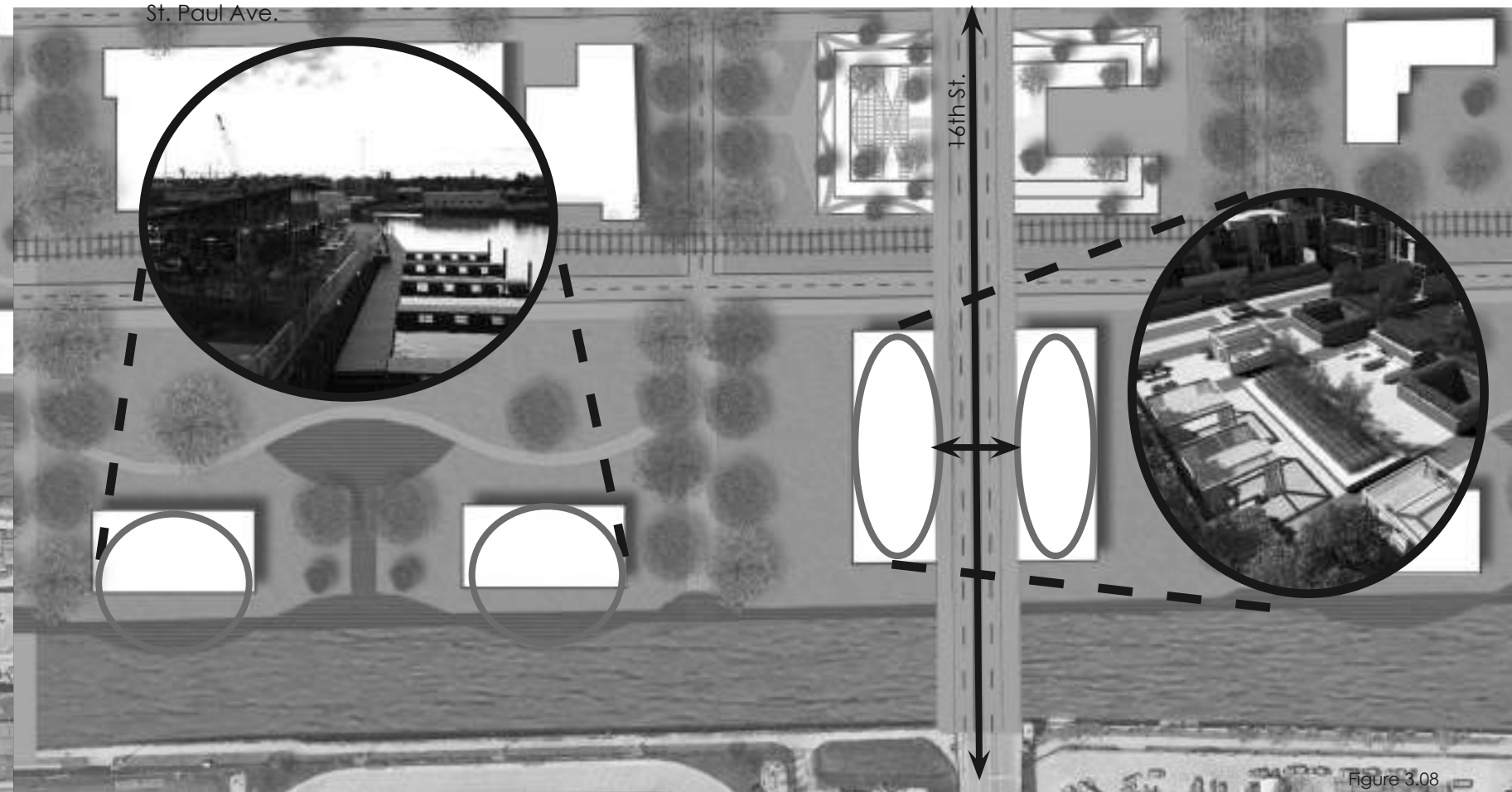


Figure 3.08

# MASTER PLAN

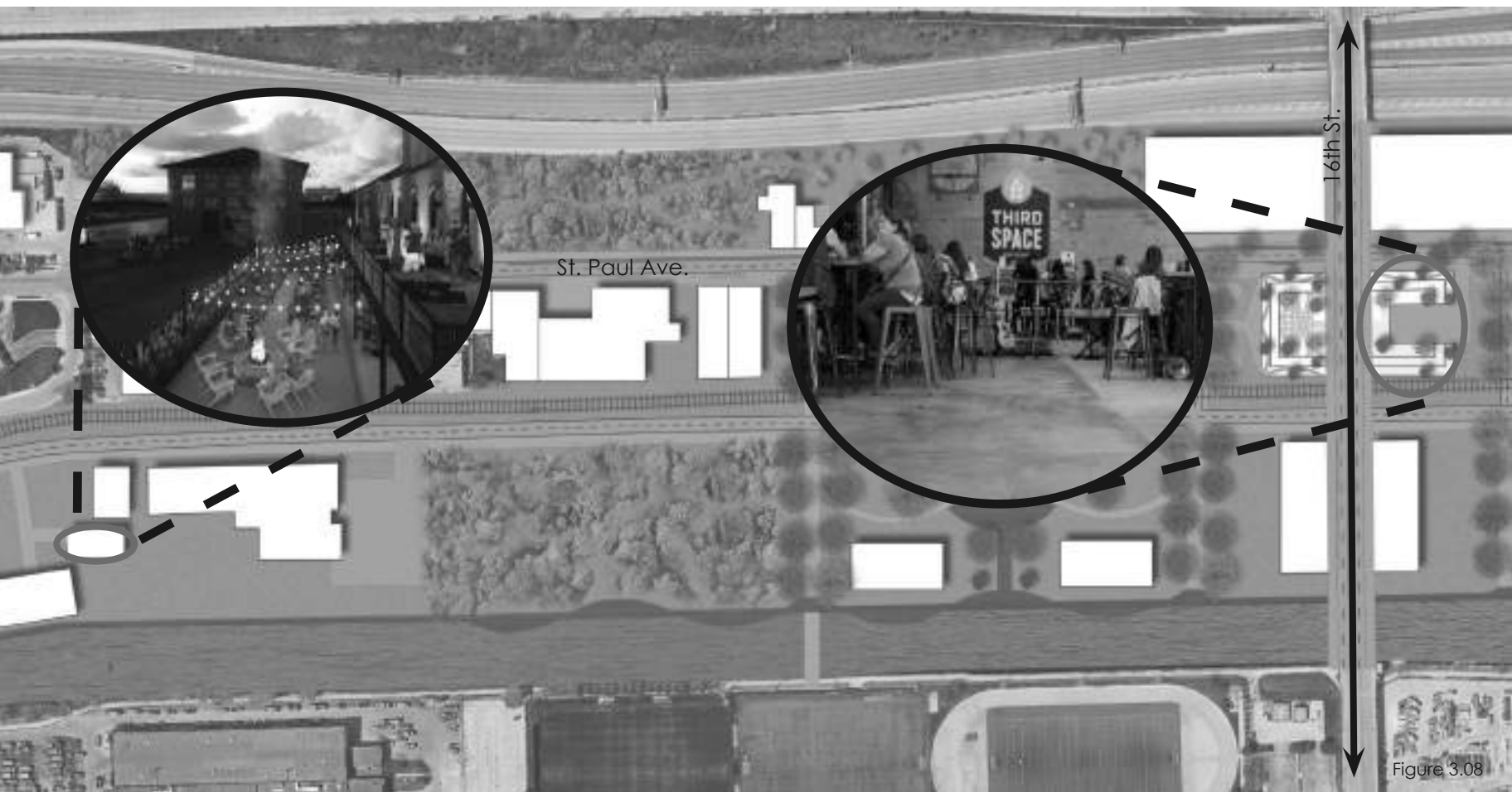


## STRENGTHEN REGIONAL CONNECTIONS: MU UNIVERSITY



### 5. 2 NEW BREWERIES

- City Lights Brewing Company (under construction)= TASTING ROOM, BEER GARDEN, FIRE PITS, MUSIC STAGE
- 3rd Space Brewery = OUTDOOR PATIO, PROPOSED ROOFTOP BAR ON 16TH STREET



# MASTER PLAN

## STRENGTHEN REGIONAL CONNECTIONS: HANK AARON STATE TRAIL

The existing trail begins at Lake Michigan near the Milwaukee Art Museum, and travels through the Menomonee River Valley all the way to Miller Park. It connects the diverse neighborhoods of the greater Milwaukee Community. The proposed master plan design will connect the Hank Aaron State Trail to St. Paul Avenue and 16th Street. This will encourage more people who are using the trail to check out St. Paul Ave. & 16th Streets' new renovations.

DESTINATIONS



WALKERS, BIKERS,  
RUNNERS & SKATERS



ACTIVITIES



Figure 3.11

# MASTER PLAN



## STRENGTHEN REGIONAL CONNECTIONS: HANK AARON STATE TRAIL



- Proposed master plan design connects Hank Aaron State Trail to my project site.
- This will encourage people using the trail to check out St. Paul Ave. & 16th Streets' renovations.

DESTINATIONS



WALKERS, BIKERS,  
RUNNERS & SKATERS

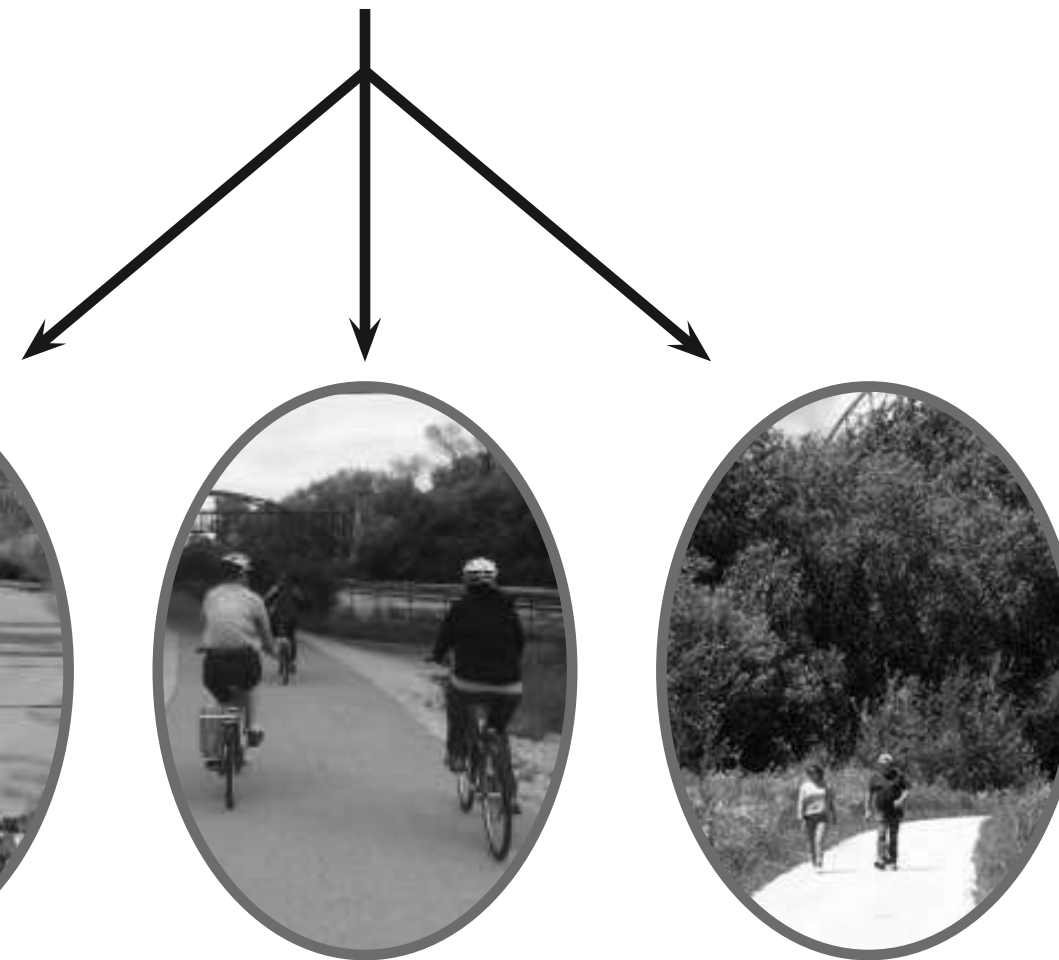


ACTIVITIES



Figure 3.12

## RUNNERS, BIKERS, WALKERS



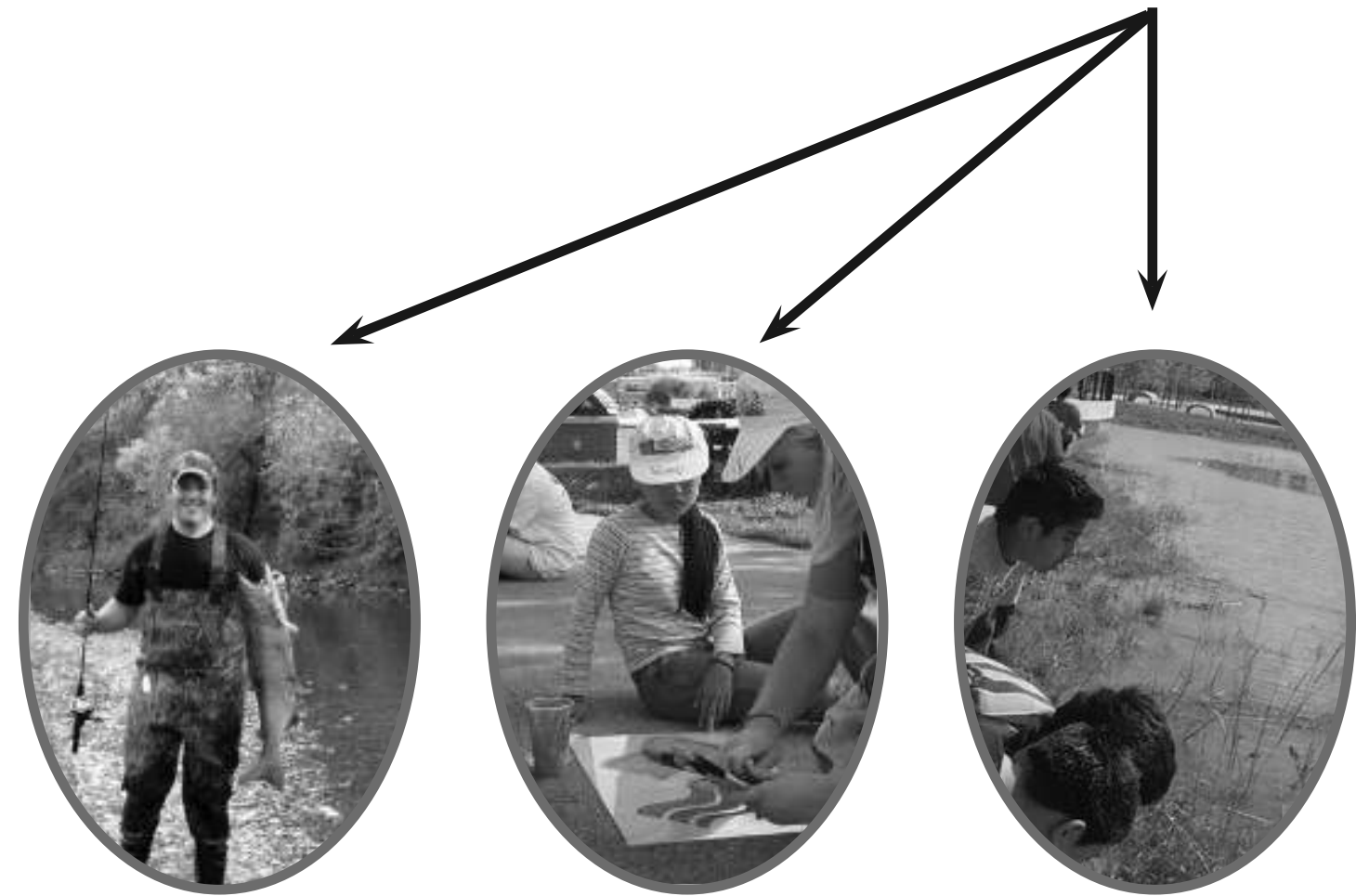
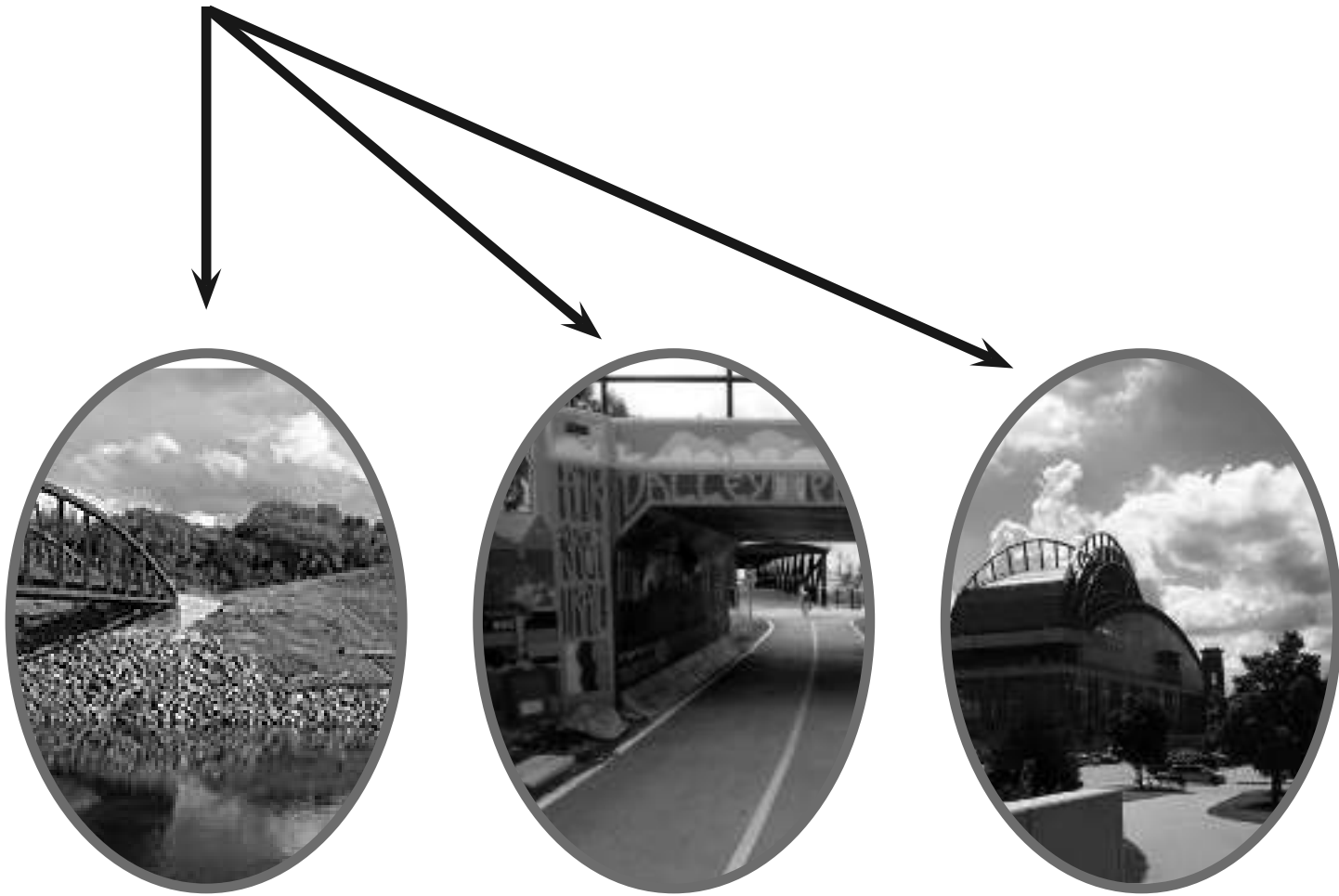


## STRENGTHEN REGIONAL CONNECTIONS: HANK AARON STATE TRAIL



DESTINATIONS

ACTIVITIES



# MASTER PLAN



## STRENGTHEN REGIONAL CONNECTIONS: HANK AARON STATE TRAIL

1. 16th Street Access
2. Proposed Pedestrian Bridge
3. 25th Street Access

### DESIGN STRATEGY:

Turn St. Paul Avenue into a destination along the Hank Aaron state trail by making three direct connections. This will help detour people on the trail into my project site, enticing them to check out the new public spaces and businesses along the river and on St. Paul Avenue. By using these three connection points, users of the trail will also get a chance to check out the new riverwalk on the North side of the Menomonee river.

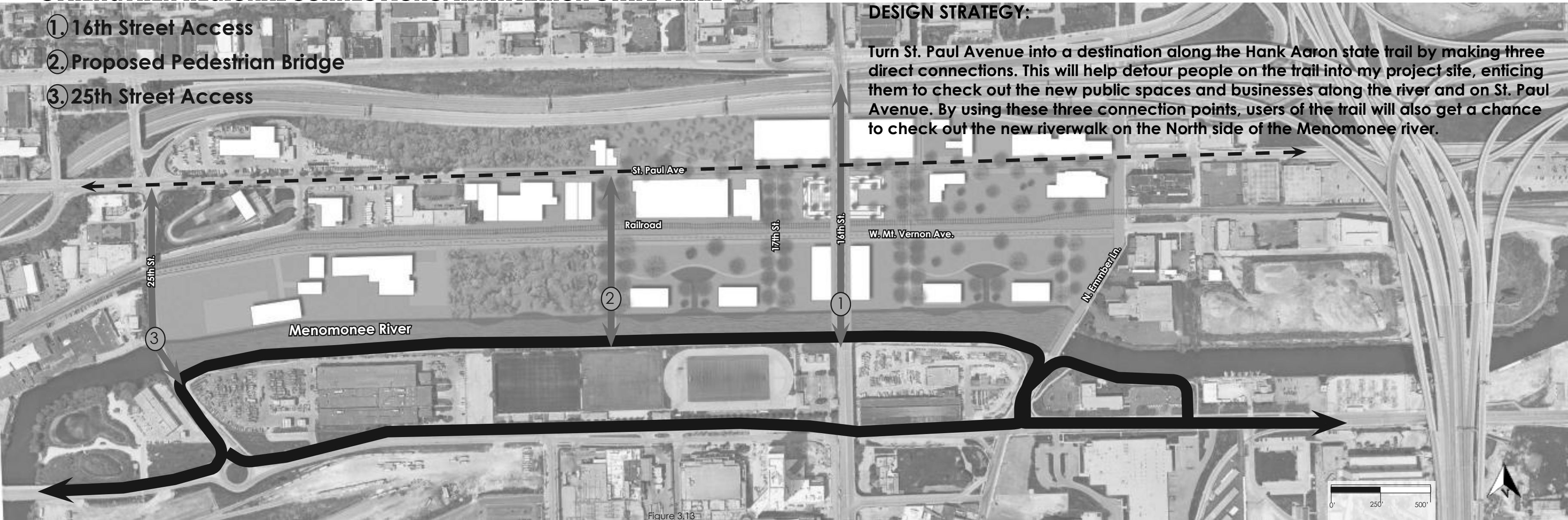


Figure 3.13



## INCREASING VEGETATION & GREEN INFRASTRUCTURE

### CURRENT:

1. 88% IMPERVIOUS SURFACES
2. FEW STREET TREES OR PLANTERS
3. PROBLEMS WITH STORMWATER MANAGEMENT

### PROPOSED:

1. INCREASE AMOUNT OF PERVIOUS SURFACES
2. ADD STREET TREES & VEGETATION
3. ADD PHYTOREMEDIATING PLANTS & ENHANCE STORM WATER SYSTEMS



### FOCUS:

- 1) PERVIOUS SURFACES
- 2) GREEN ROOFS
- 3) PHYTOREMEDIATION

## GREEN INFRASTRUCTURE: PERVIOUS SURFACES

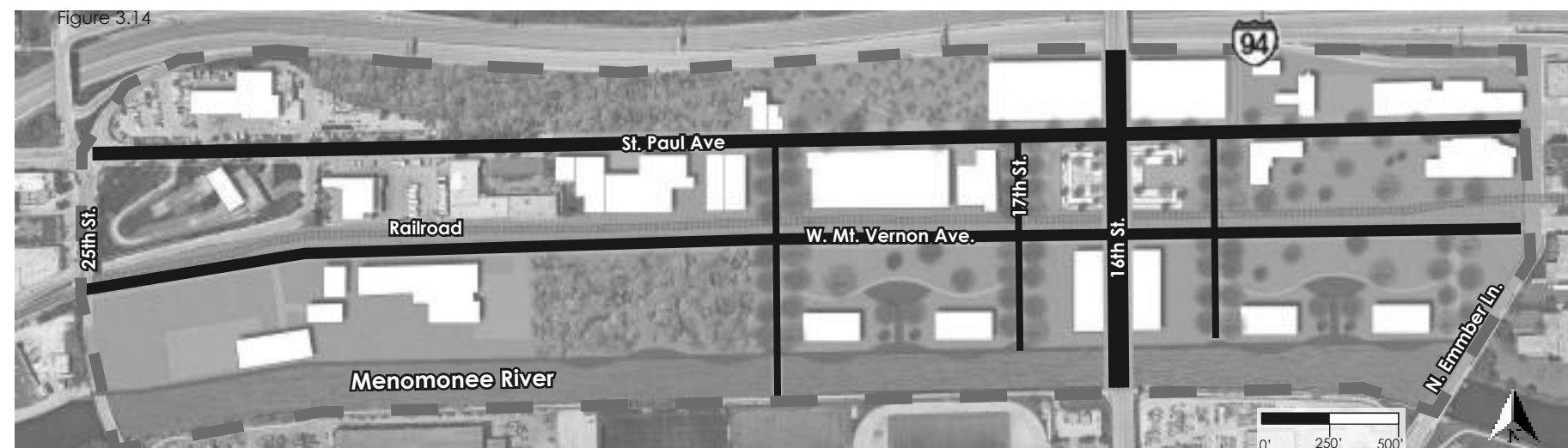
### EXISTING

Impervious pavement



### PROPOSED

Pervious pavement





## GREEN INFRASTRUCTURE: PERVIOUS SURFACES

Pervious pavement



Vegetation

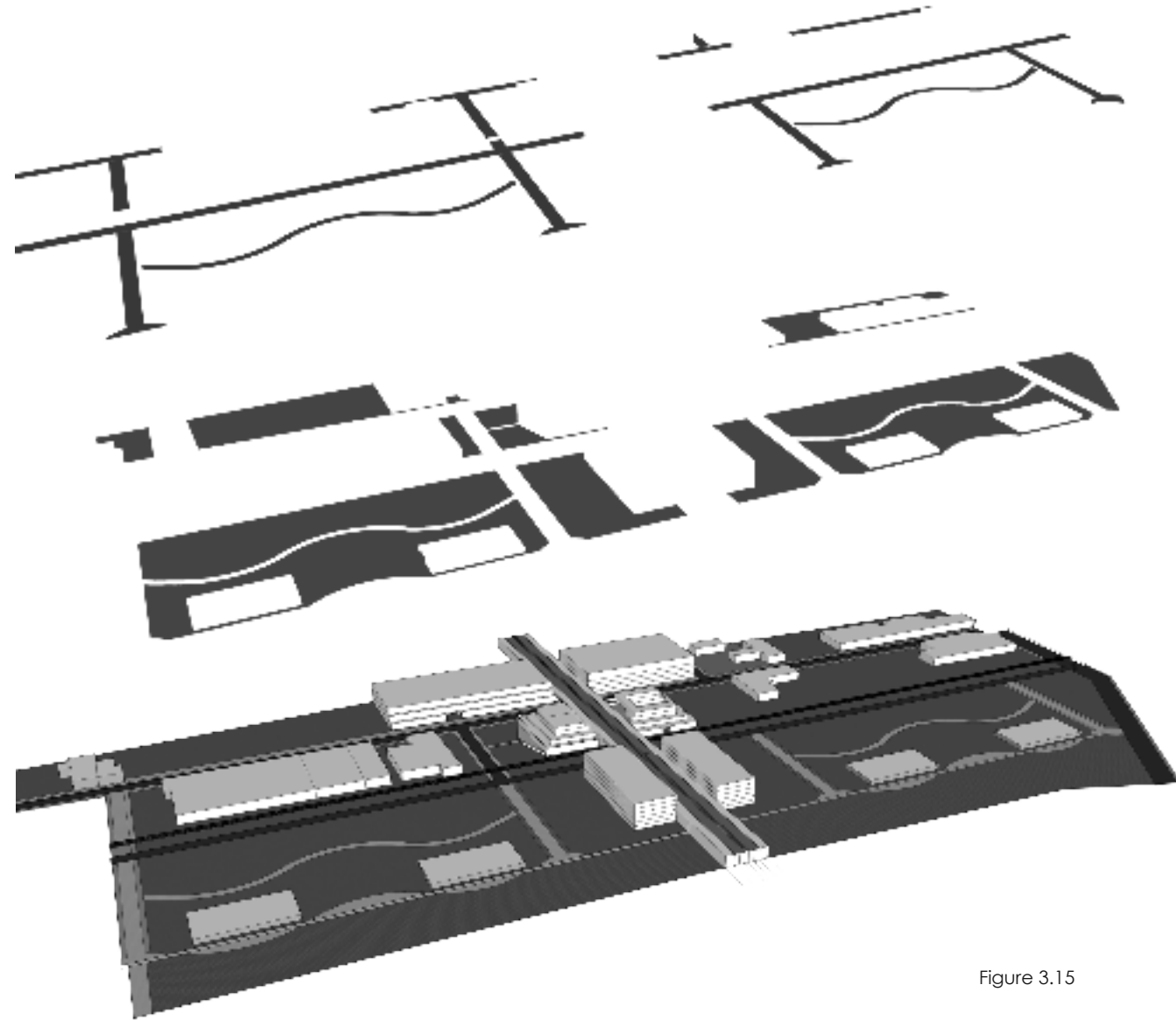


Figure 3.15

## GREEN INFRASTRUCTURE: GREEN ROOFS

Turf grass



Sedum green roof



Native grass green roof

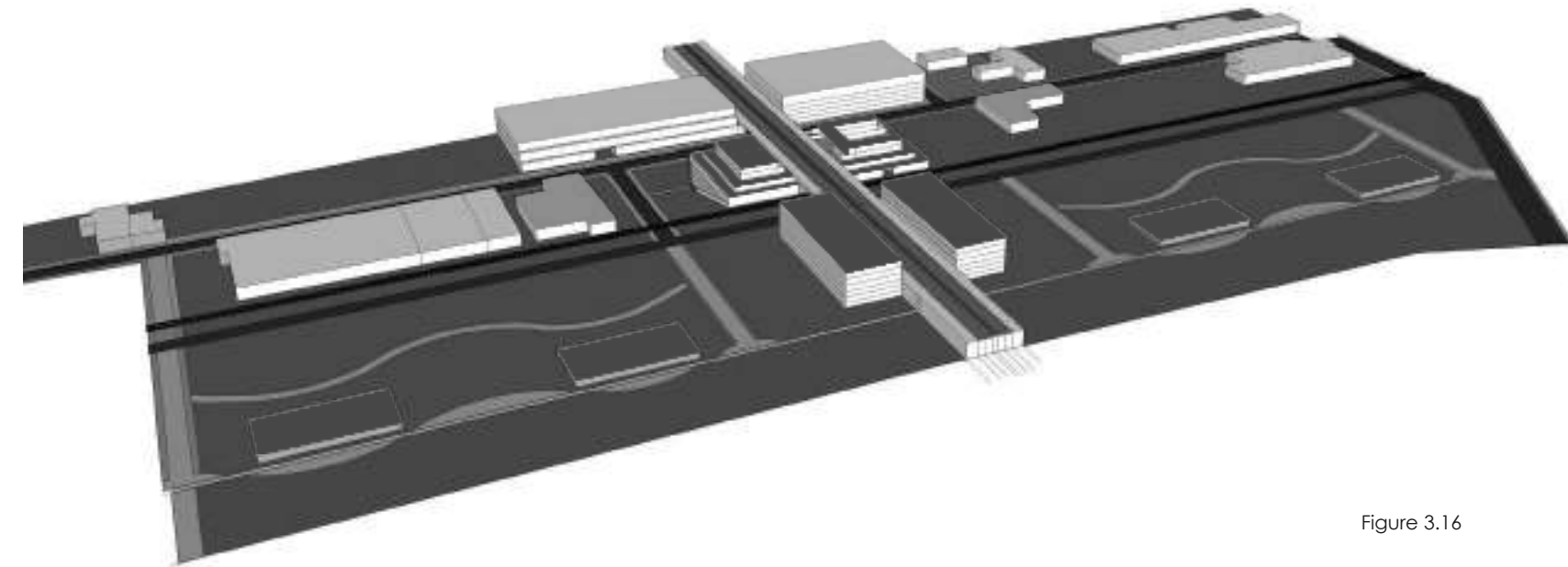
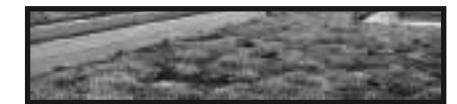
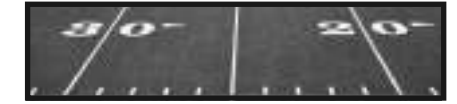


Figure 3.16





## GREEN INFRASTRUCTURE: PHYTOREMEDIATION

SOIL= urban, compacted & contaminated from history of industrial use

SOLUTION= Restore with phytoremediation or restart by capping & filling with new soil.

■ PHYTOREMEDIATION

■ CAP & FILL



Figure 3.17

## DESIGN STRATEGY:

I intend to use phytoremediation on large areas of my site to revitalize the soil and rejuvenate the land. Other areas that I assume have higher levels of contamination I am proposing to simply cap at grade and fill in with new soil. The Menomonee Valley itself is a brownfield, which is described by the EPA as a “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant.” Remediation of a brown field includes the removal or sealing off of that contaminant so that a site may be used again without health concerns (EPA).

Remediation starts by looking at the property's past uses and identifying possible contaminants. This process of remediation depends on the intended use of the property. Remediation techniques are divided into those for groundwater and soil.





## PHASING STRATEGY

### PHASE 1: 0-5 YEARS

#### ST. PAUL AVE. REVITALIZATION

- Extended sidewalks
- More vegetation
- Community art & lighting

### PHASE 2: 5-10 YEARS

#### PUBLIC SPACE RESTORATION

- Public parks
- River walk & docks
- Mixed use buildings

### PHASE 3: 10-20 YEARS

#### 16TH ST. REVITALIZATION

- Raised mixed use buildings
- Extended sidewalks
- Street trees





# SITE PLAN

**1. PROGRAMMING**

**2. MAJOR CORRIDORS**

**3. IMPLEMENT PHASING STRATEGY**

**4. PLANTING**

**5. STORMWATER MANAGEMENT**

**6. GRADING & DRAINAGE**

**7. CONCLUSION**



# SITE PLAN



## EXISTING



## PROPOSED



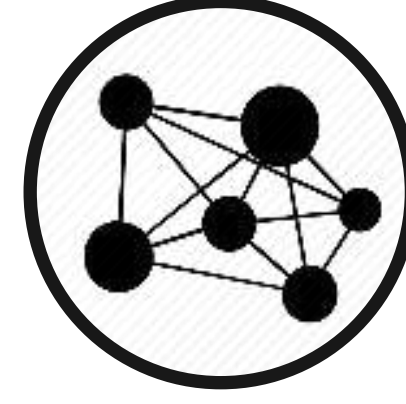
### DESIGN STRATEGY:

- MORE GREEN SPACE
- ENHANCED PEDESTRIAN EXPERIENCE



### DESIGN STRATEGY:

- INCREASED CONNECTIONS
- ENHANCED STREET CORRIDORS

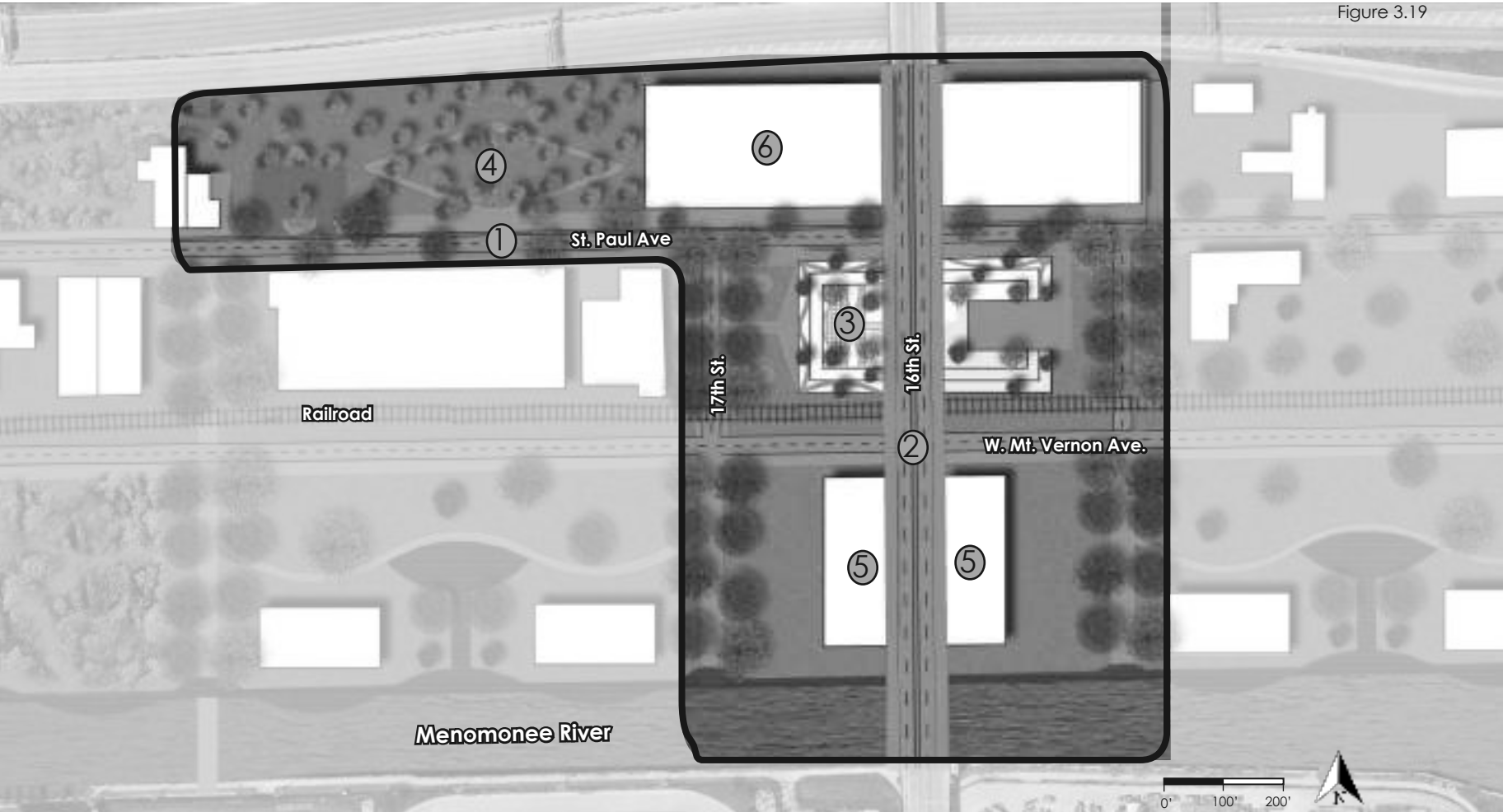


# SITE PLAN



## PROPOSED PLAN

- 1. St. Paul Avenue revitalized streetscape
- 2. 16th Street revitalized streetscape
- 3. Green roof terrace mixed use building
- 4. Phytoremediation park
- 5. Mixed use buildings
- 6. Recreational Center
- 7. Parking Structure
- 8. River walk



# SITE PLAN



## PROGRAMMING PRECEDENTS

1. St. Paul Avenue revitalized streetscape
2. 16th Street revitalized streetscape



**ENHANCE PEDESTRIAN EXPERIENCE**  
**INCREASED CONNECTIVITY**

3. Green roof terrace mixed use building
4. Phytoremediation park



**REDUCE STORMWATER RUNOFF**  
**ATTRACT PEOPLE FROM SURROUNDING NEIGHBORHOODS**

Figure 3.20

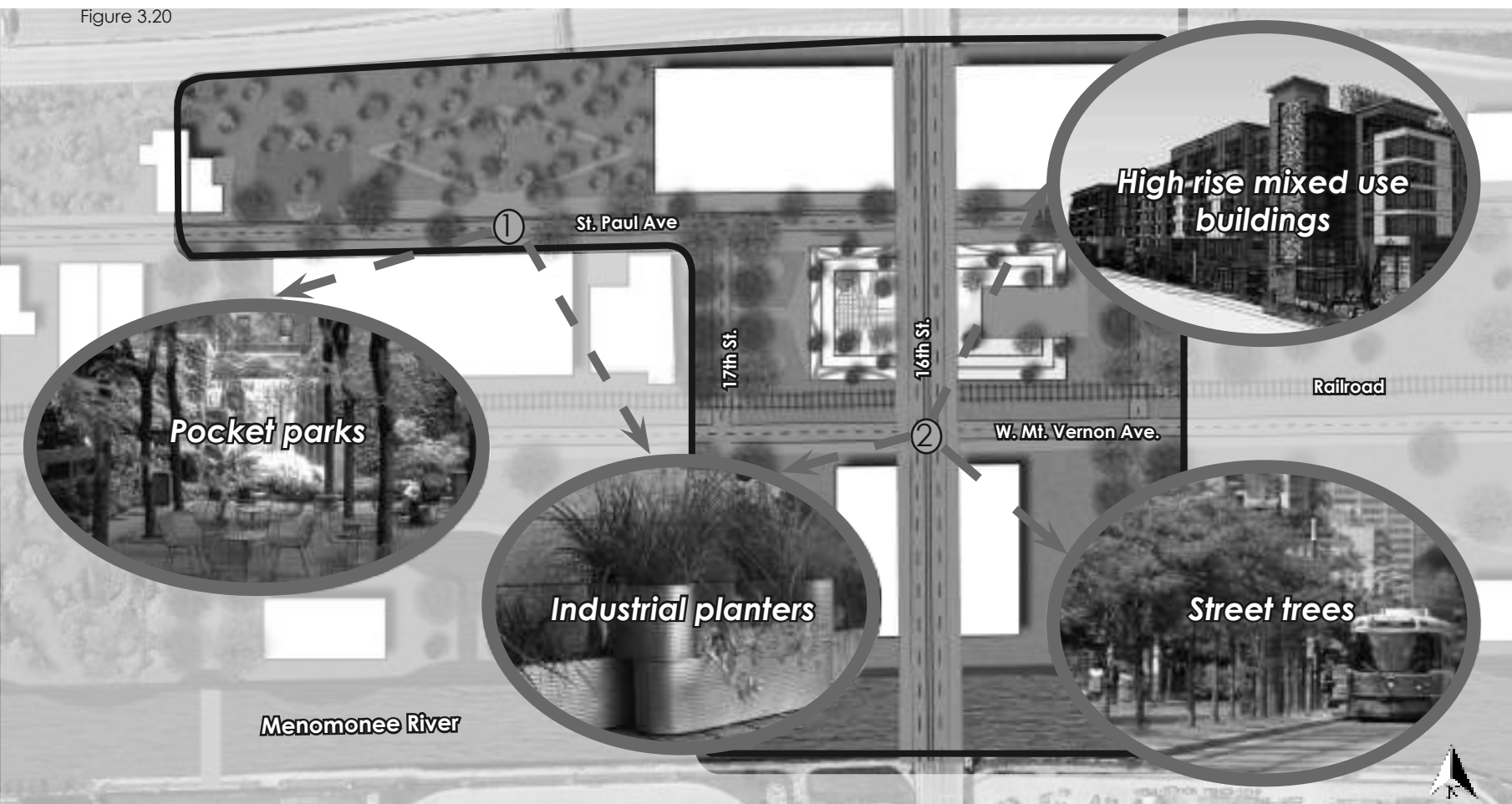
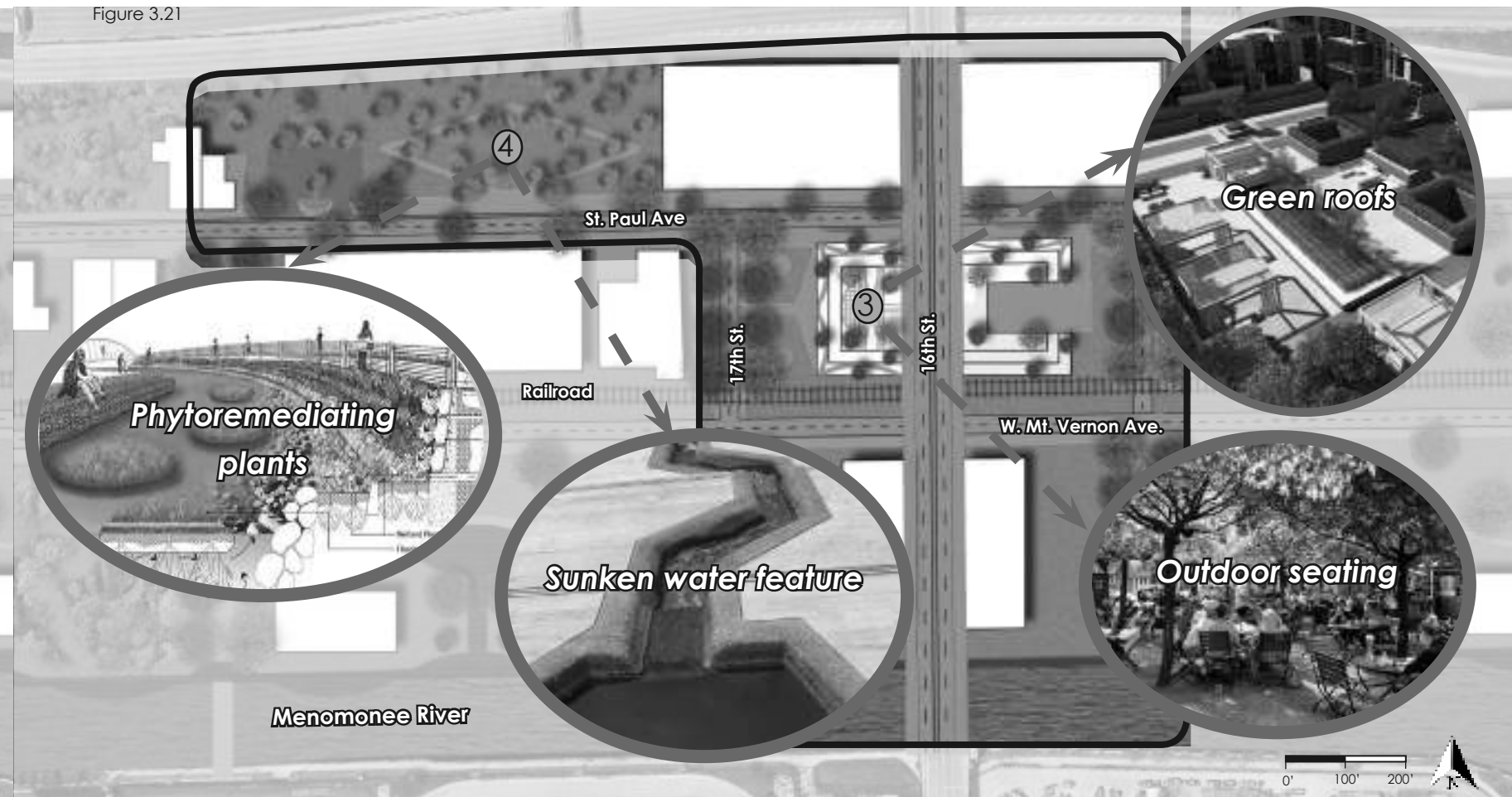


Figure 3.21



# SITE PLAN



## PROGRAMMING PRECEDENTS

- 3. Green roof terrace mixed use building
- 4. Phytoremediation park



**REDUCE STORMWATER RUNOFF**  
**ATTRACT PEOPLE FROM SURROUNDING**  
**NEIGHBORHOODS**

- 5. Mixed use buildings
- 6. Recreational Center
- 7. Parking Structure
- 8. River walk



**URBAN RECREATIONAL OUTLET**  
**ATTRACT GENERAL PUBLIC**

Figure 3.22

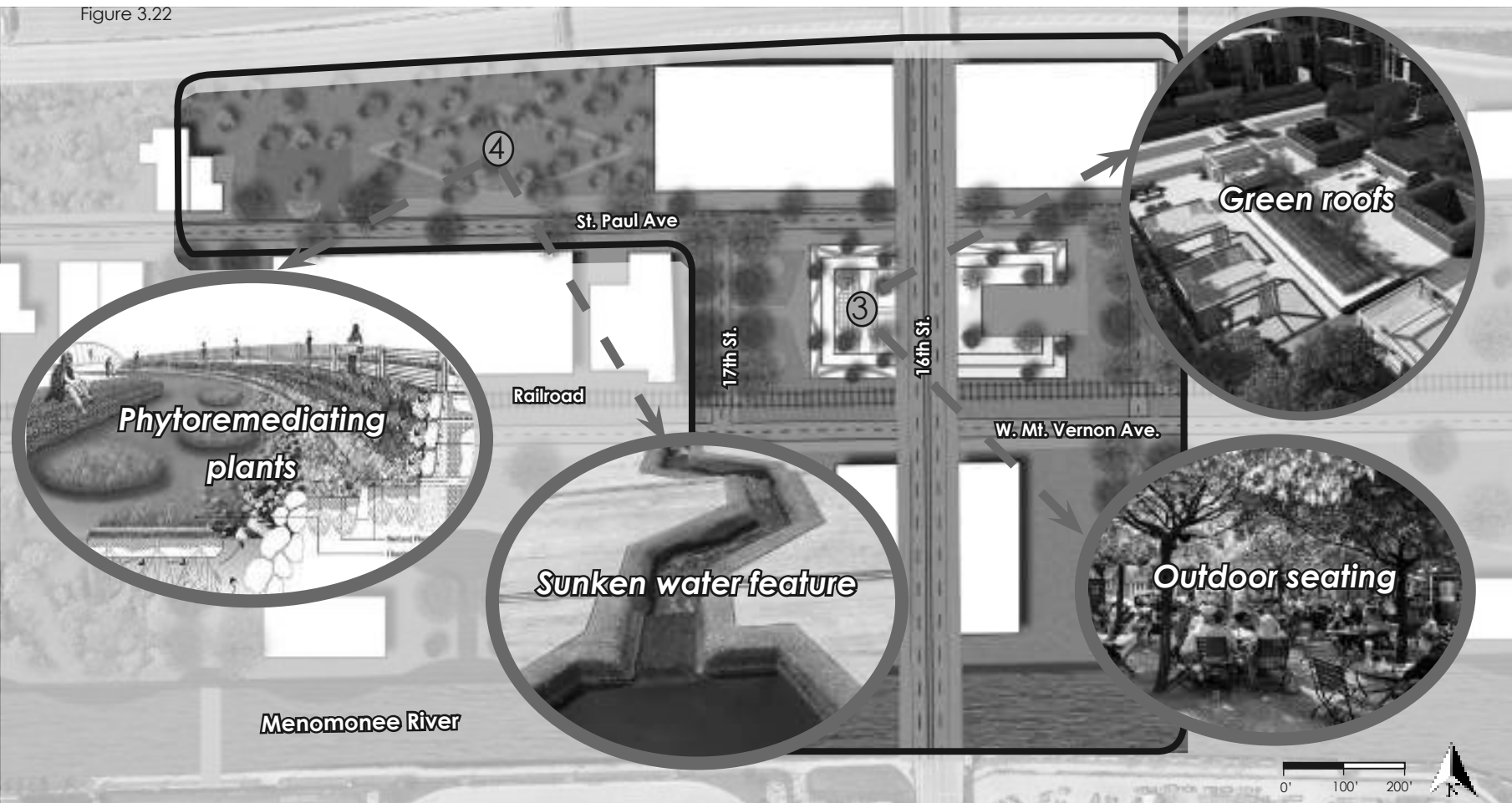
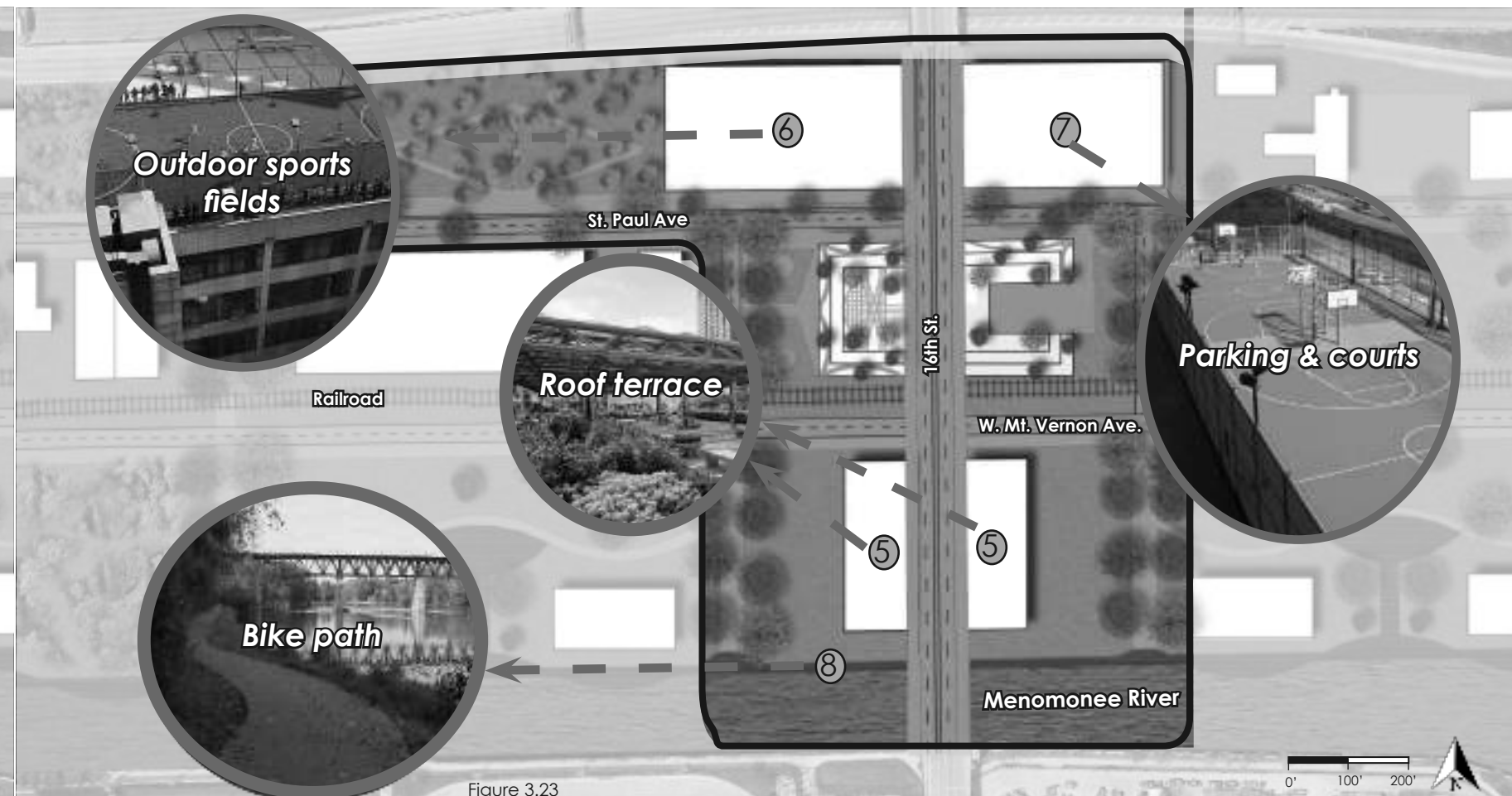


Figure 3.23



# SITE PLAN



## PEDESTRIAN CIRCULATION

- More pedestrian paths
- Linear paths leading from St. Paul Ave. to the River
- ADA accessible paths; elevators connect 16th St. to St. Paul Ave.
- Pedestrian friendly atmosphere

## VEHICULAR CIRCULATION

- Pervious pavement
- Proposed roads are more narrow --> widened sidewalks increase pedestrian friendly atmosphere

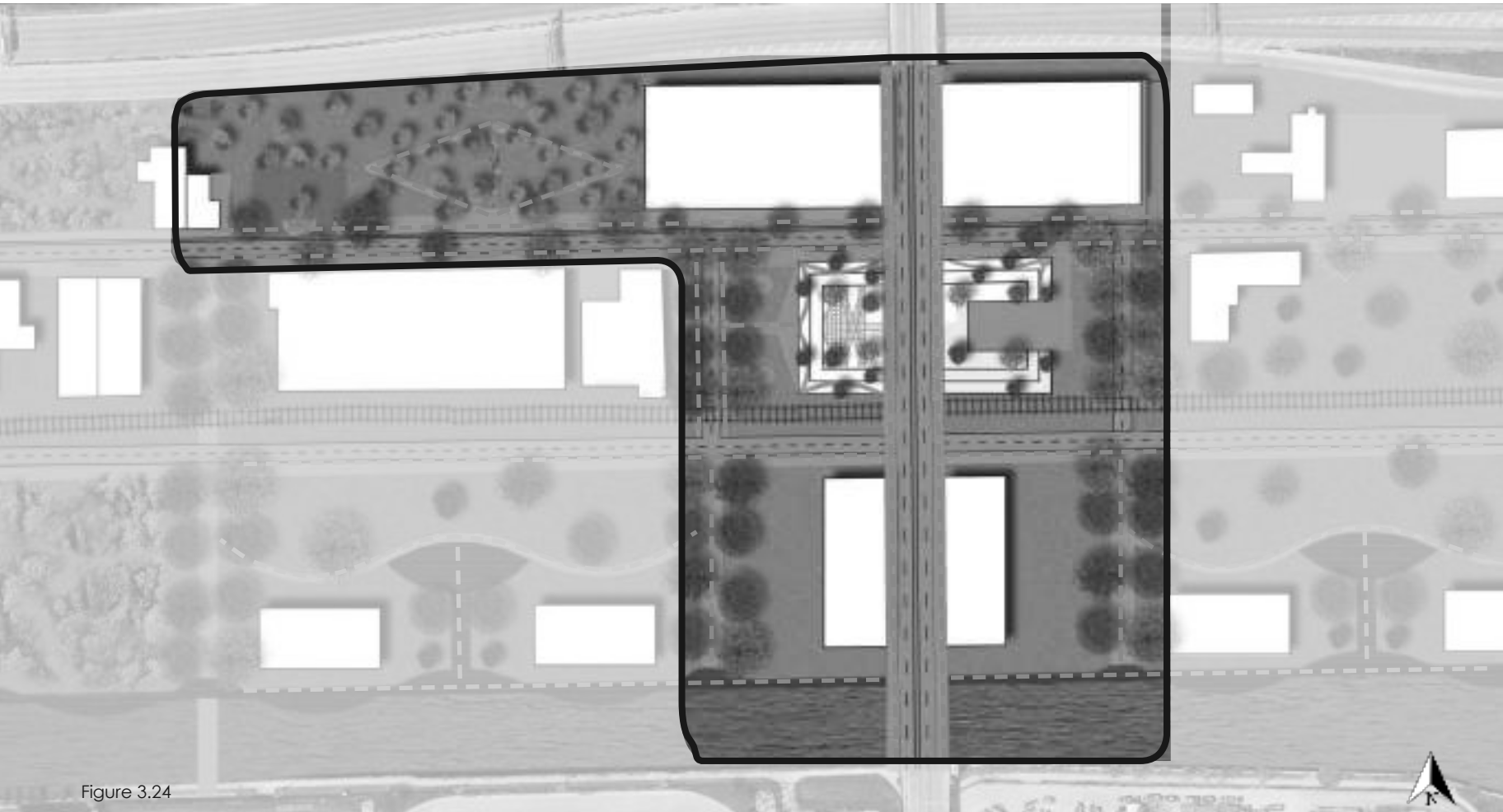


Figure 3.24

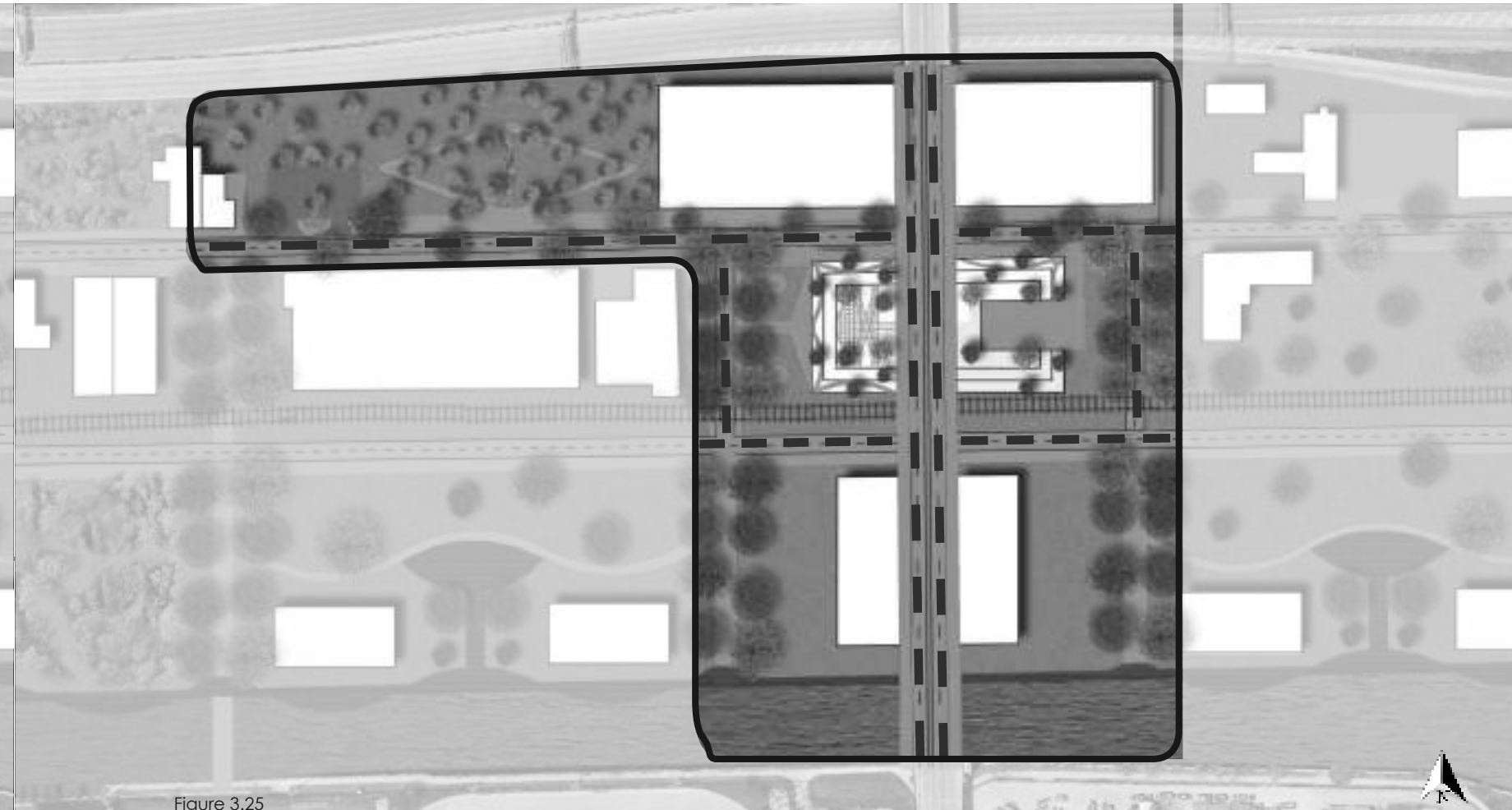


Figure 3.25



# SITE PLAN



## MAJOR CORRIDORS

- St. Paul Ave.
- W. Mt. Vernon Ave.
- Menomonee River Corridor

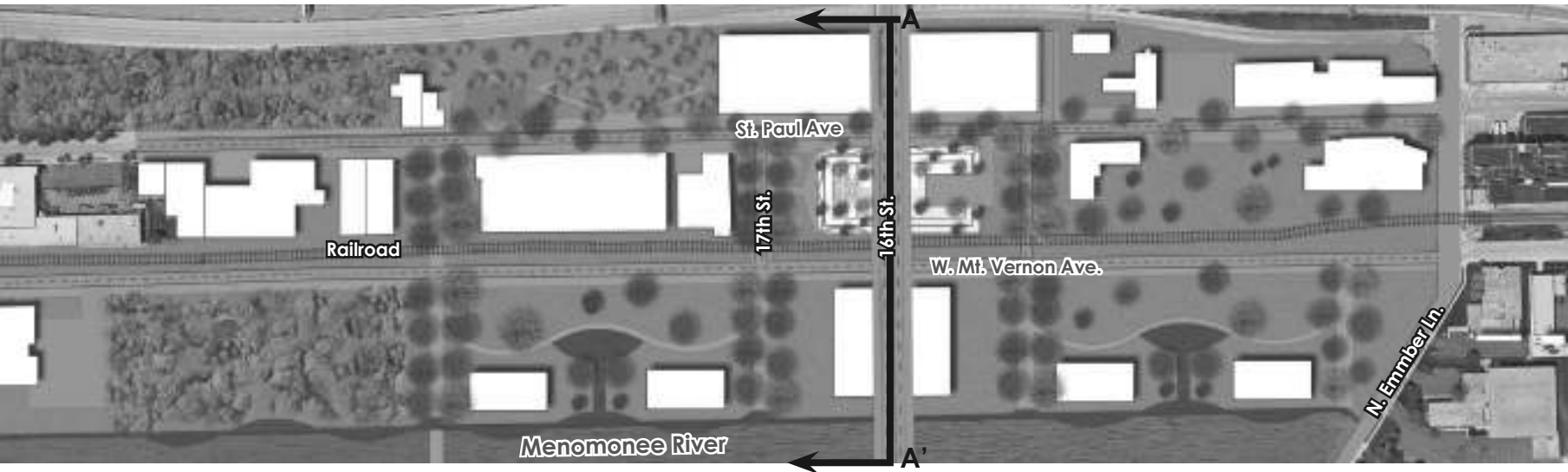
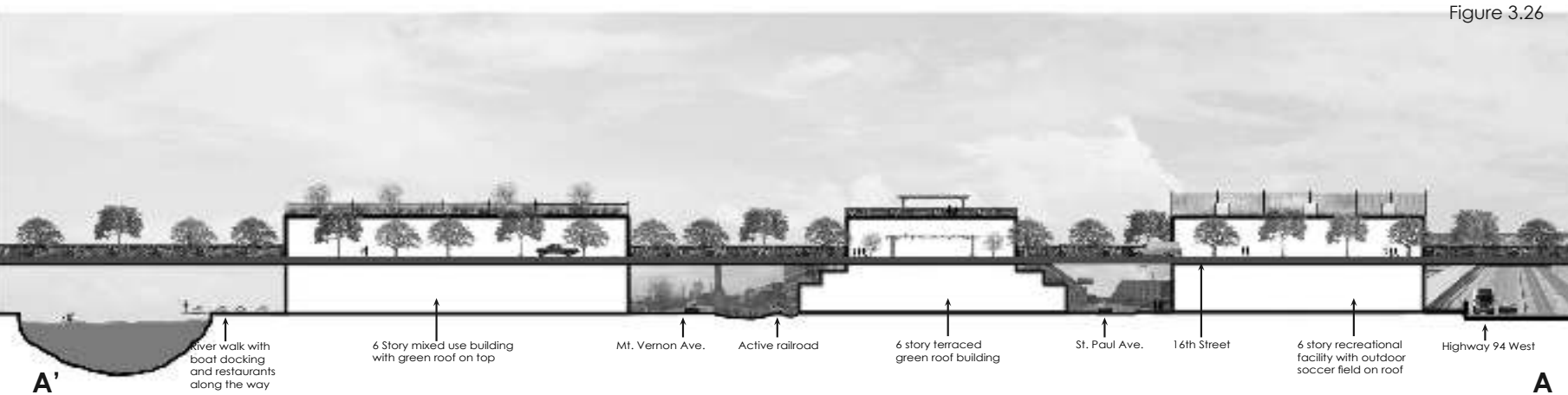
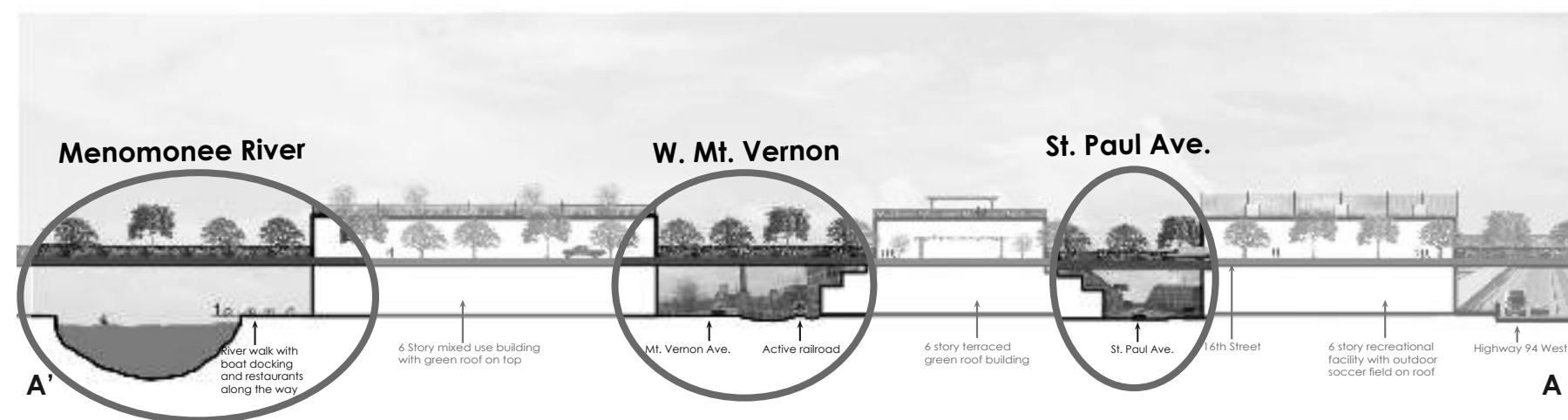


Figure 3.26



## CORRIDOR PROGRAMMING: ENHANCE VIADUCT

- Improve atmosphere under 16th St.



# SITE PLAN



## CORRIDOR IMPROVEMENTS

- St. Paul Ave. Street aesthetic & pedestrian experience

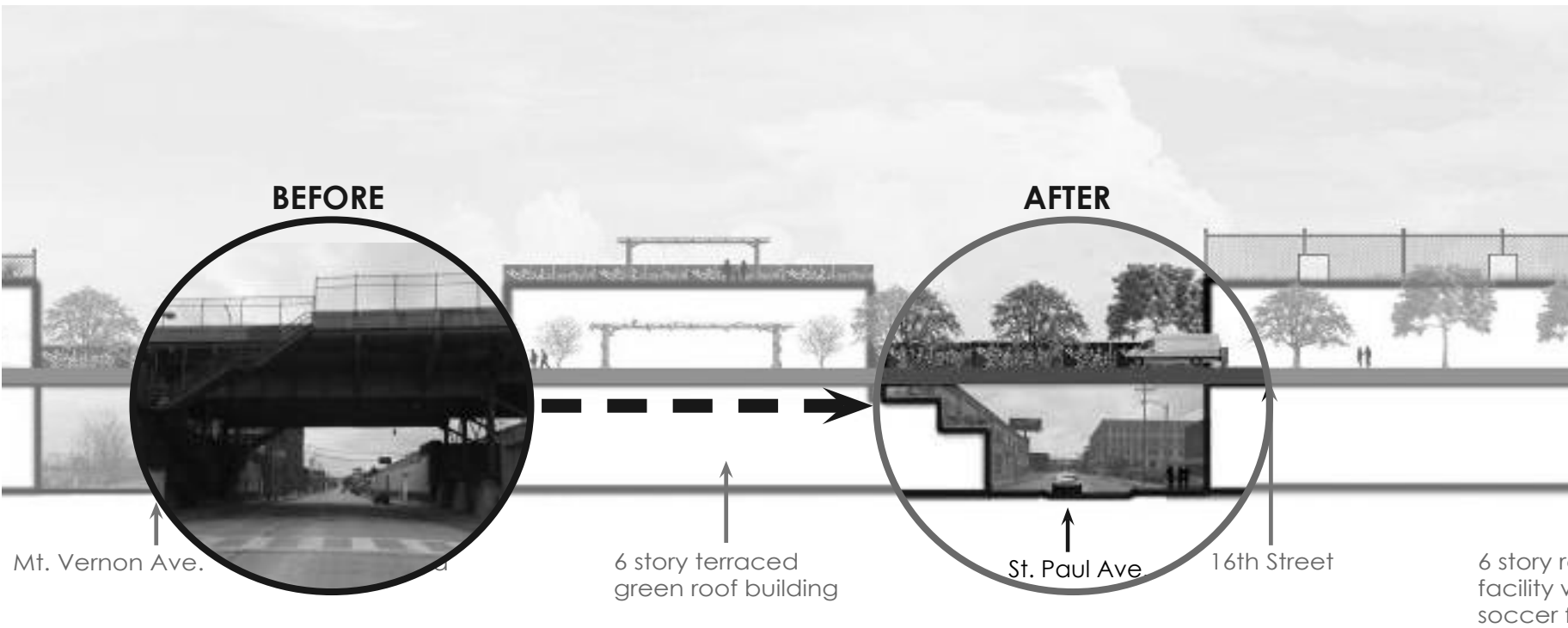


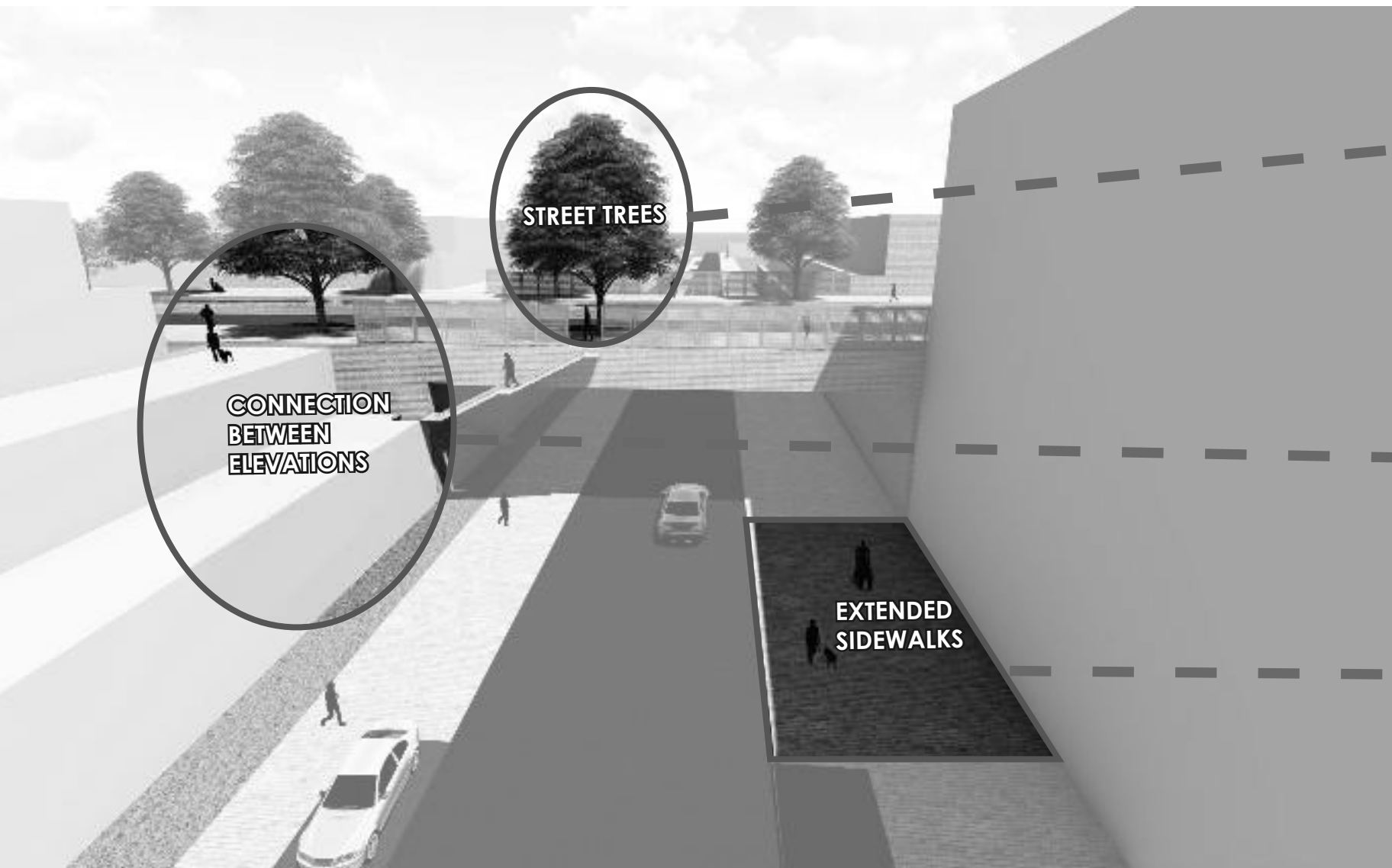
Figure 3.27

# SITE PLAN



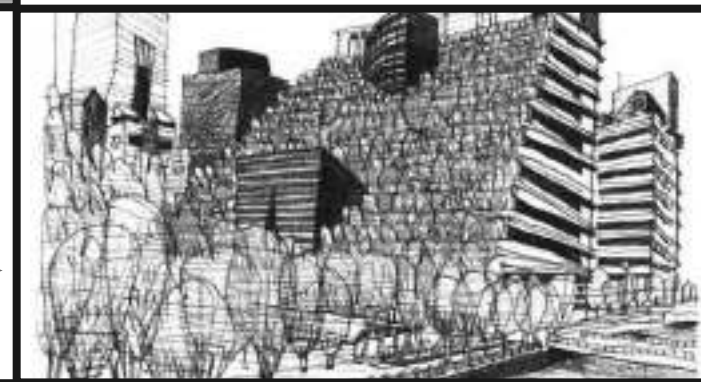
## CORRIDOR IMPROVEMENTS

- St. Paul Ave. — — — — — → Street aesthetic & pedestrian experience



Large over arching street trees (like the ones shown in the precedent image at left) create the type of streetscape atmosphere that I hope to invoke on my own site.

My design is similar to the concept sketch at right, in that it intends to connect the ground plane to high rise buildings through the use of green roof terraces.



I used the image at left for inspiration when thinking about how to create a better pedestrian experience on my site. I widened the sidewalks and proposed planters, lighting and outdoor seating.

# SITE PLAN



## CORRIDOR IMPROVEMENTS

- St. Paul Ave. Street aesthetic & pedestrian experience

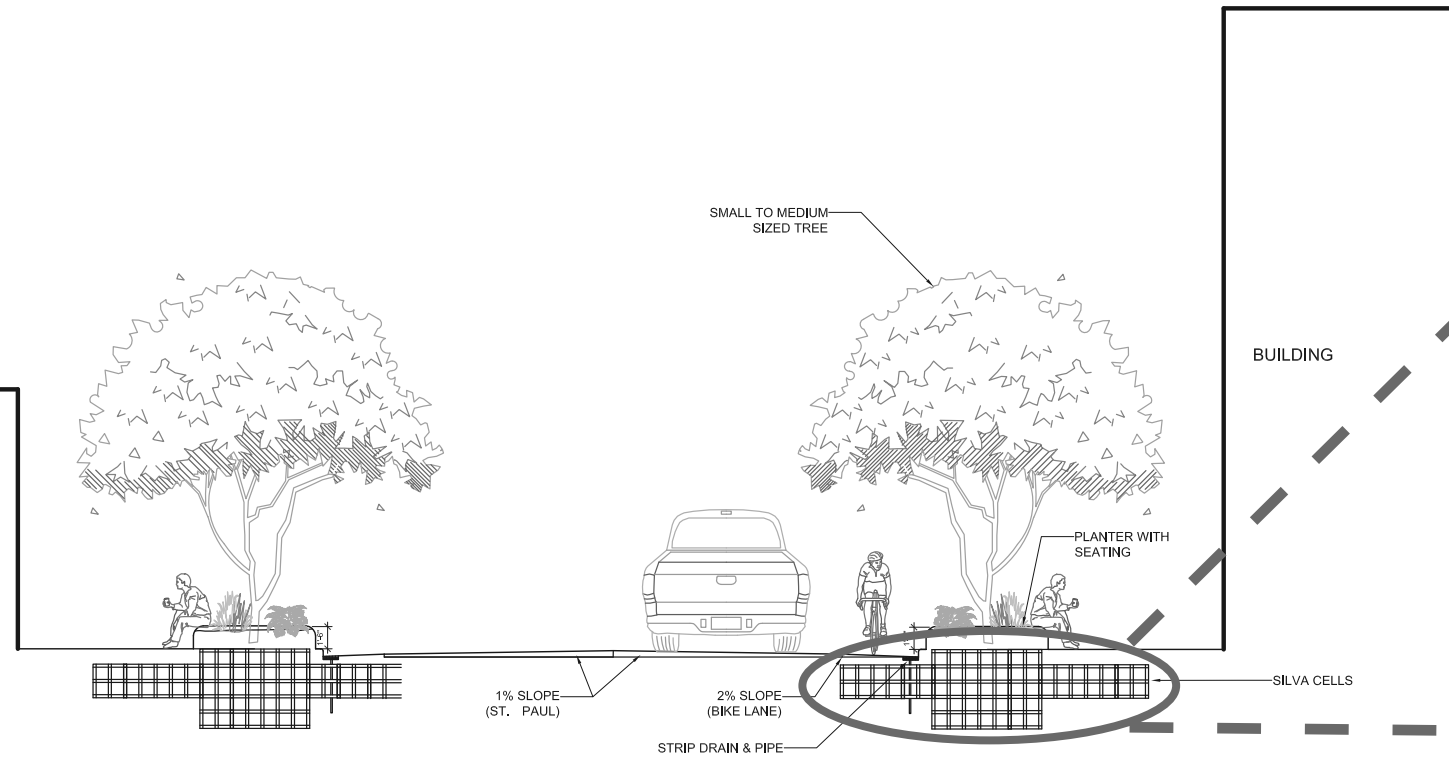


Figure 3.26

## SILVA CELL DETAIL & ELEVATION

**Design strategy:** The soil on St. Paul Ave. is very urban and compacted, making it hard to grow healthy trees. Silva cells helps loosen up the soil around tree roots in urban areas and promote growth.

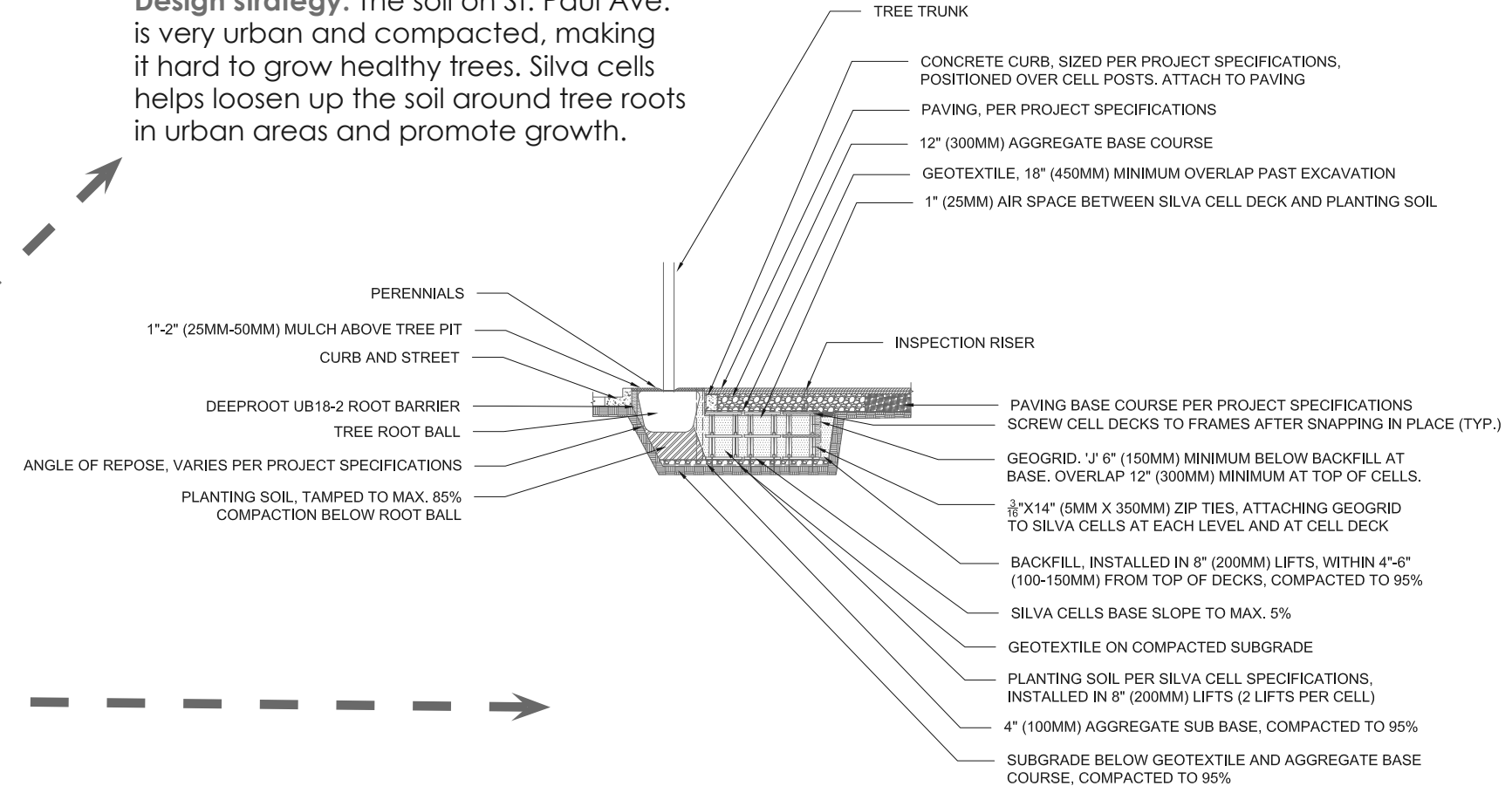


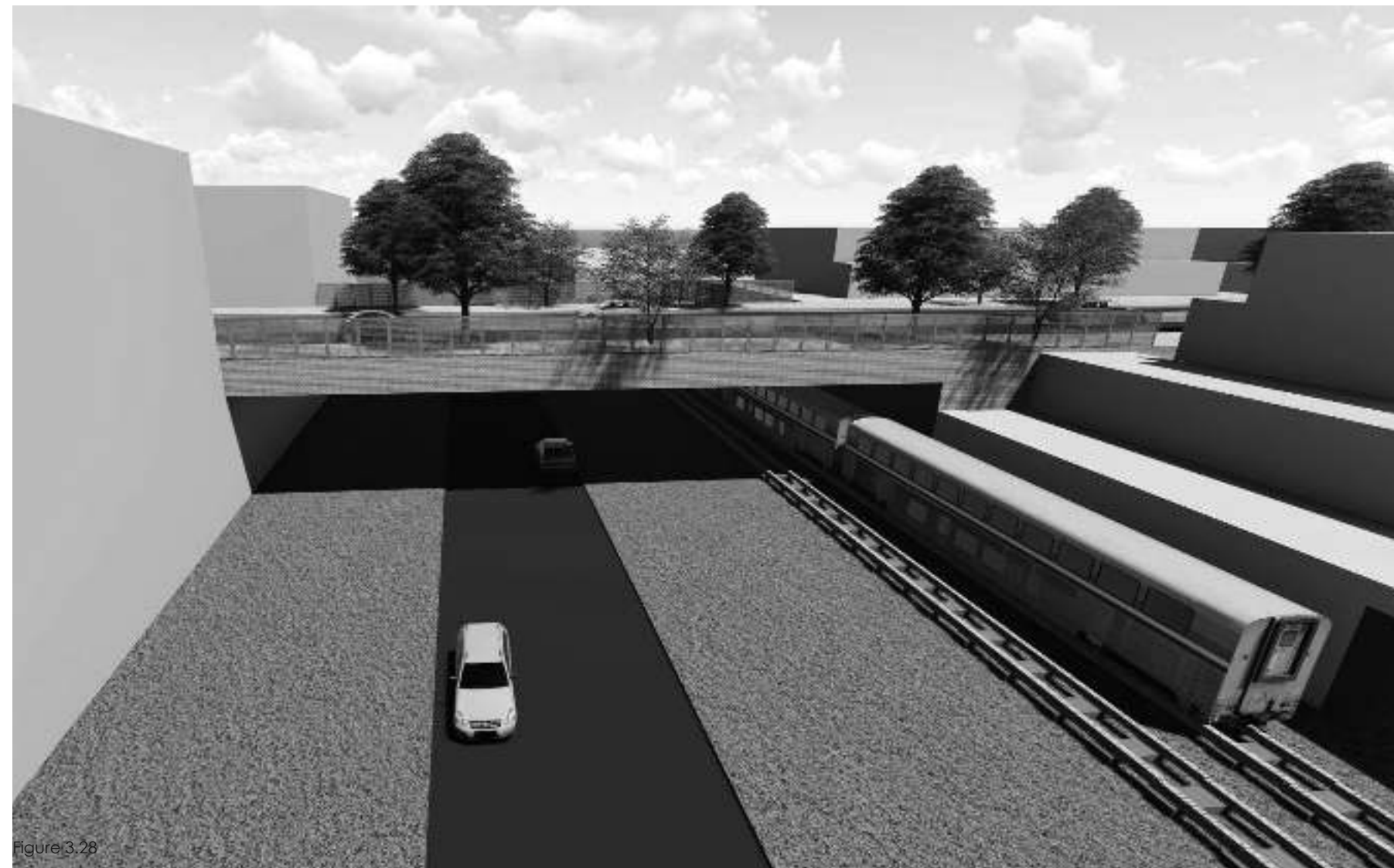
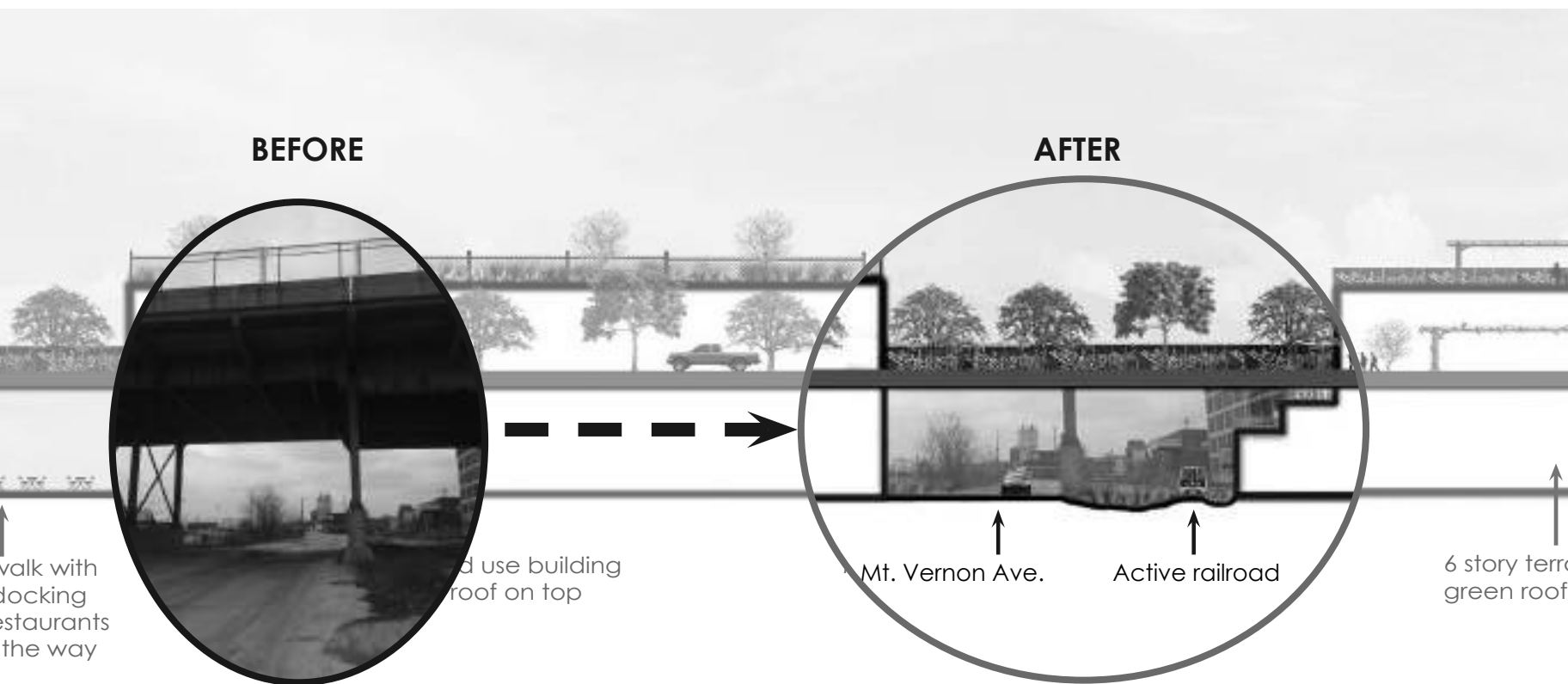
Figure 3.27

# SITE PLAN



## CORRIDOR IMPROVEMENTS

- West Mt. Vernon Ave. — — — — — ➔ Street aesthetic & storm water management



# SITE PLAN



## CORRIDOR IMPROVEMENTS

- West Mt. Vernon Ave.  Street aesthetic & storm water management

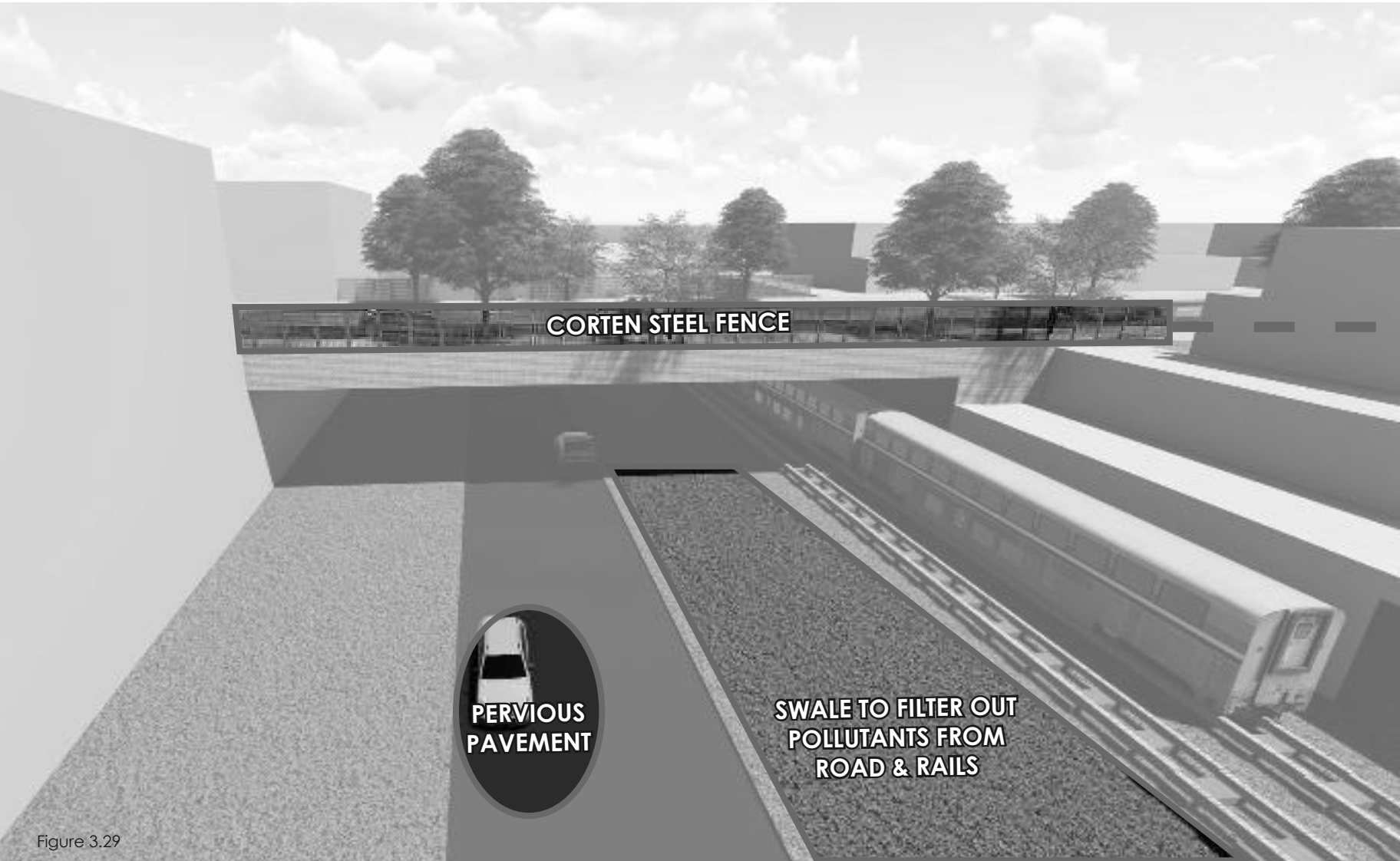


Figure 3.29

## CORTEN FENCE DETAIL

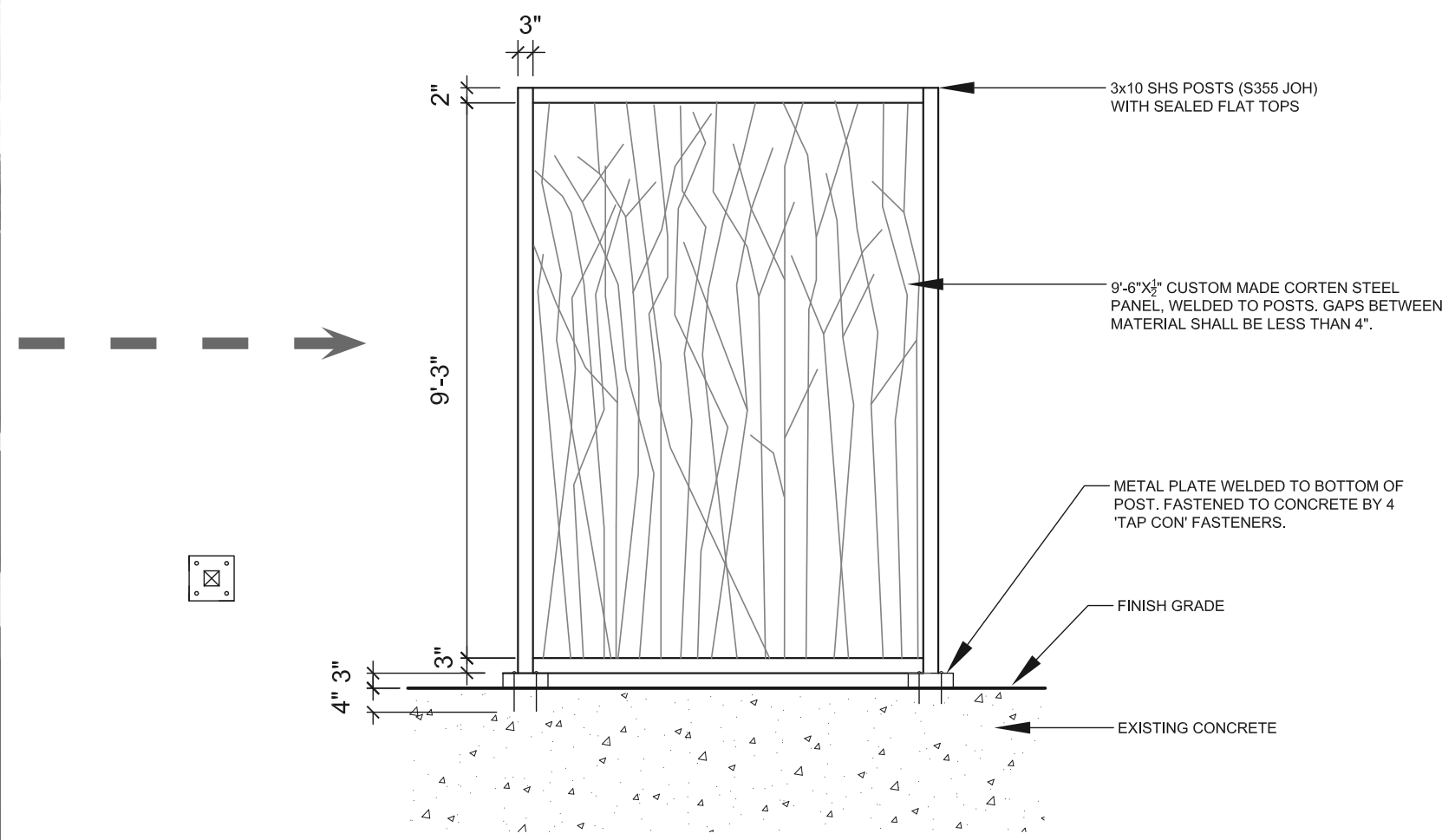


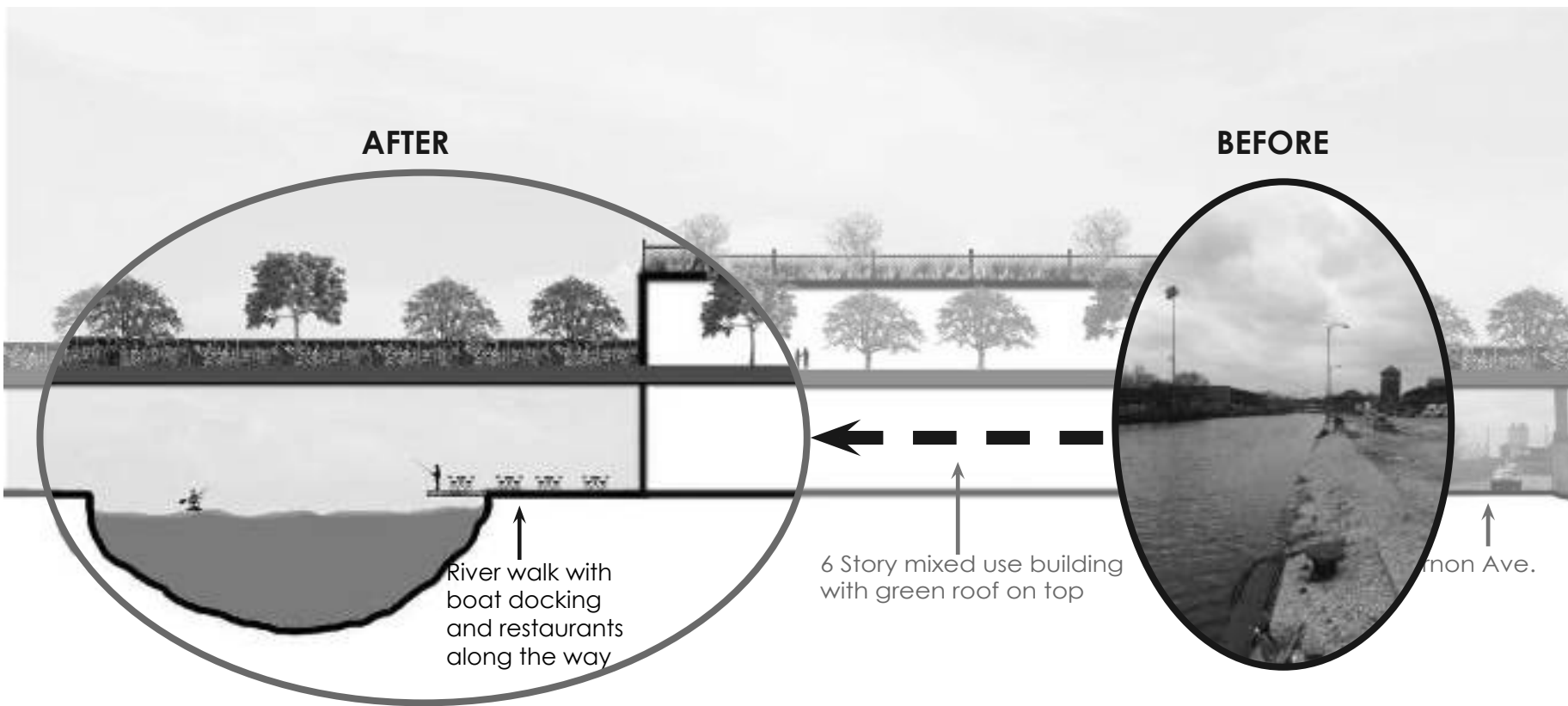
Figure 3.30

# SITE PLAN



## CORRIDOR IMPROVEMENTS

- Menomonee River **■ ■ ➔ Storm water management & river front development**  
Corridor



I have proposed a pedestrian bridge on my site to improve connectivity and strengthen the waterfront. The precedent image at left portrays some of the opportunities of adding a pedestrian bridge.

I am proposing a riverwalk, mixed use development and public outdoor spaces along the Menomonee river on my site. Some of these elements could be modeled after the successful Chicago riverwalk (shown at right).



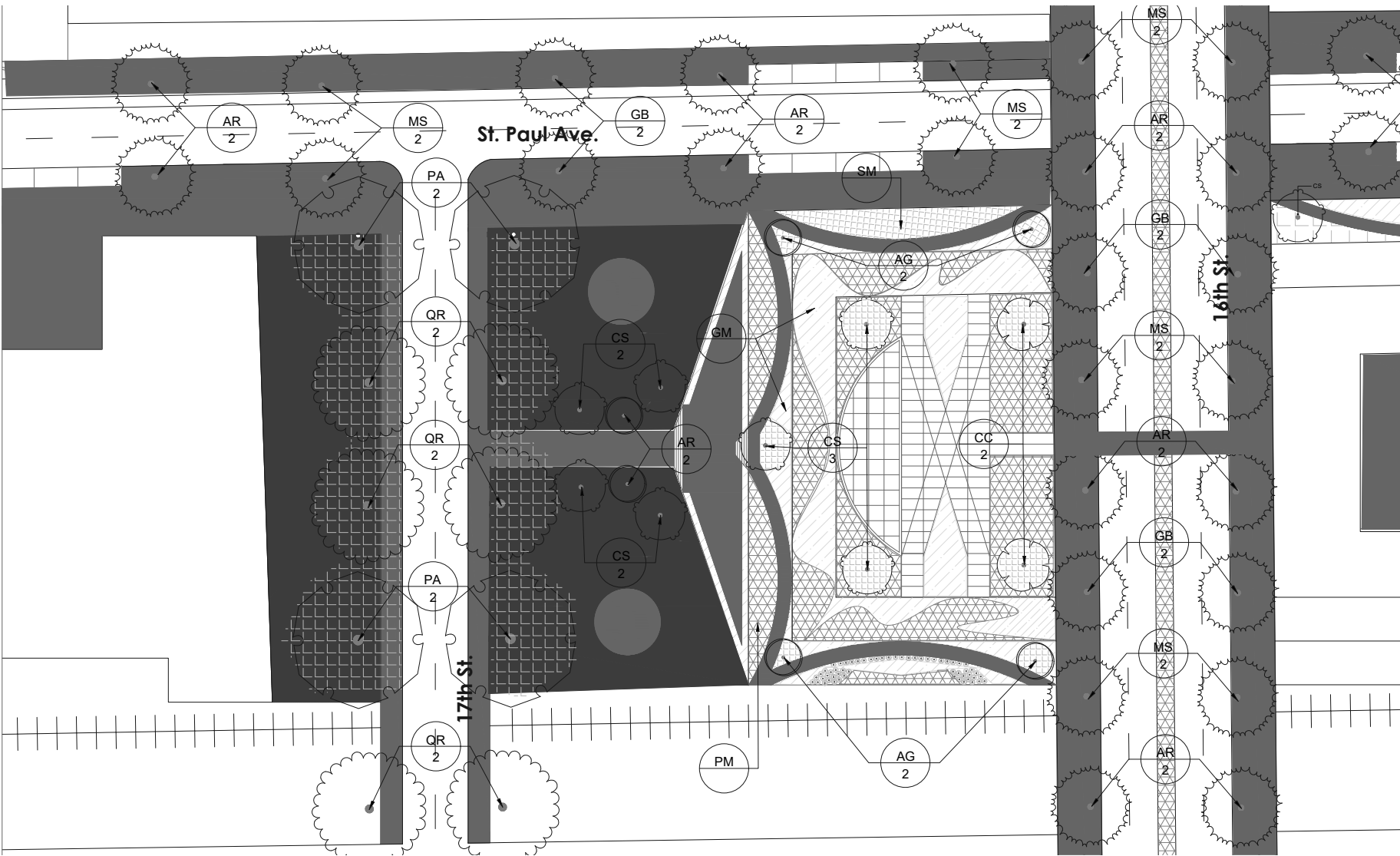
The precedent image at left resembles the industrial feel of my site, and has a riverwalk trail for bikers and runners. I intend to create a similar trail on the Menomonee River and connect it to the Hank Aaron State trail.

# SITE PLAN



## PLANTING

### PLANTING PLAN: TERRACE GREEN ROOF AREA



### PLANT SCHEDULE: TERRACE GREEN ROOF AREA

Plant symbol	Common Name	Botanical name	Color	Bloom time	Height/ spread
<b>Trees</b>					
AG	Serviceberry	Amelanchier x grandiflora	white flowers; orange/red fall	April-May	H: 15-25' S: 15-25'
AR	Red Maple	Acer rubrum			
CS	Judas tree	Cercis siliquastrum	red-purp flowers; red	march-april	H: 15-25' S: 15-25'
CC	Musclewood	Carpinus caroliniana	yellow-red fall; white flowers	early spring	H: 20-30' S: 15-20'
GB	Ginkgo	Ginkgo Biloba			H: 20-40' S: 20-30'
MS	Star Magnolia	Magnolia Stellata	white flowers	spring	H: 8-15' S: 5-10'
<b>Grasses</b>					
SH	Blue-green moor grass	Sesleria heufleriana	blue green foliage, seed heads	Semi-evergreen	H: 1.5-2'
PV	Switch grass	Panicum virgatum	purple stigmas; yellow fall		3-6'
AG	Big bluestem grass	Andropogon gerardii	blue-green leaves; tan fall		4-8'
SH	Prairie dropseed	Sporobolus heterolepis	pink/brown	August-October	2-3'
CA	Feather Reed grass	Calamagrostis x acutiflora 'Karl Foerster'	pinkish	May-February	H: 3-5' S: 1.5-2.5'
<b>Prairie mix</b>					
AT	Butterfly milkweed	Asclepias tuberosa	yellow/ orange	June- August	H: 1-2.5' S: 1-1.5'
LC	Cardinal flower	Lobelia cardinalis	red	July-September	H: 2-4' S: 1-2'
LS	Marsh blazing star	Liatris spicata	Pink/purple	summer	2-5'
<b>Shade Mix</b>					
CP	Pennsylvania sedge	Carex pensylvanica			H: 6-12"
LC	Cardinal flower	Lobelia cardinalis	red	July-September	H: 2-4' S: 1-2'
CF	blue sedge	Carex flacca 'Blue Zinger'	blue leaves		1-1.5'
G	Snowdrops	Galanthus	white	early spring	H: 6"
AP	Purple milkweed	Asclepias purpurascens	Purple	June-July	H: 2-3'



# SITE PLAN



## PLANTING

GREEN ROOF TERRACE: BEFORE



Figure 3.31

GREEN ROOF TERRACE: AFTER

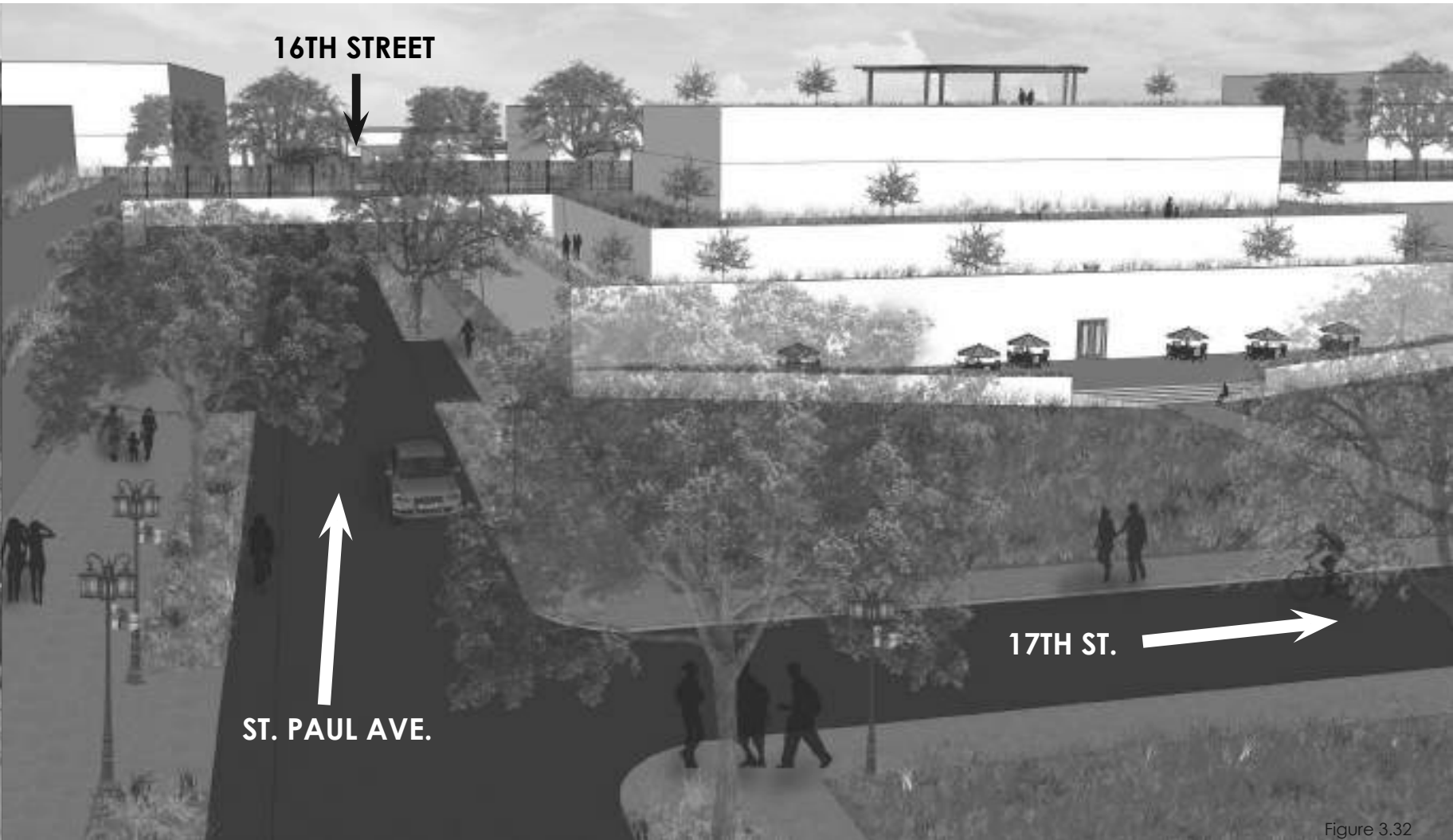


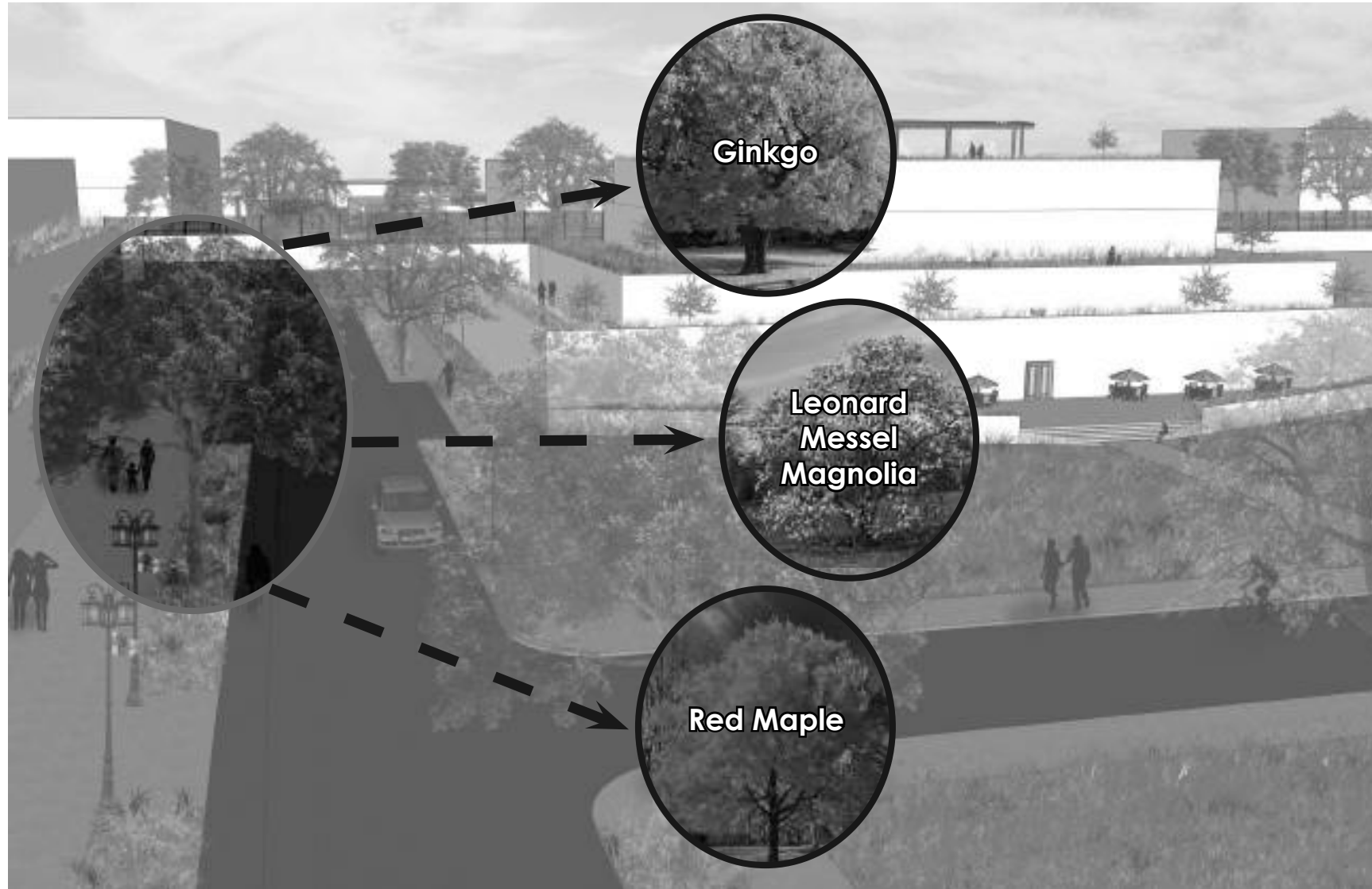
Figure 3.32

# SITE PLAN



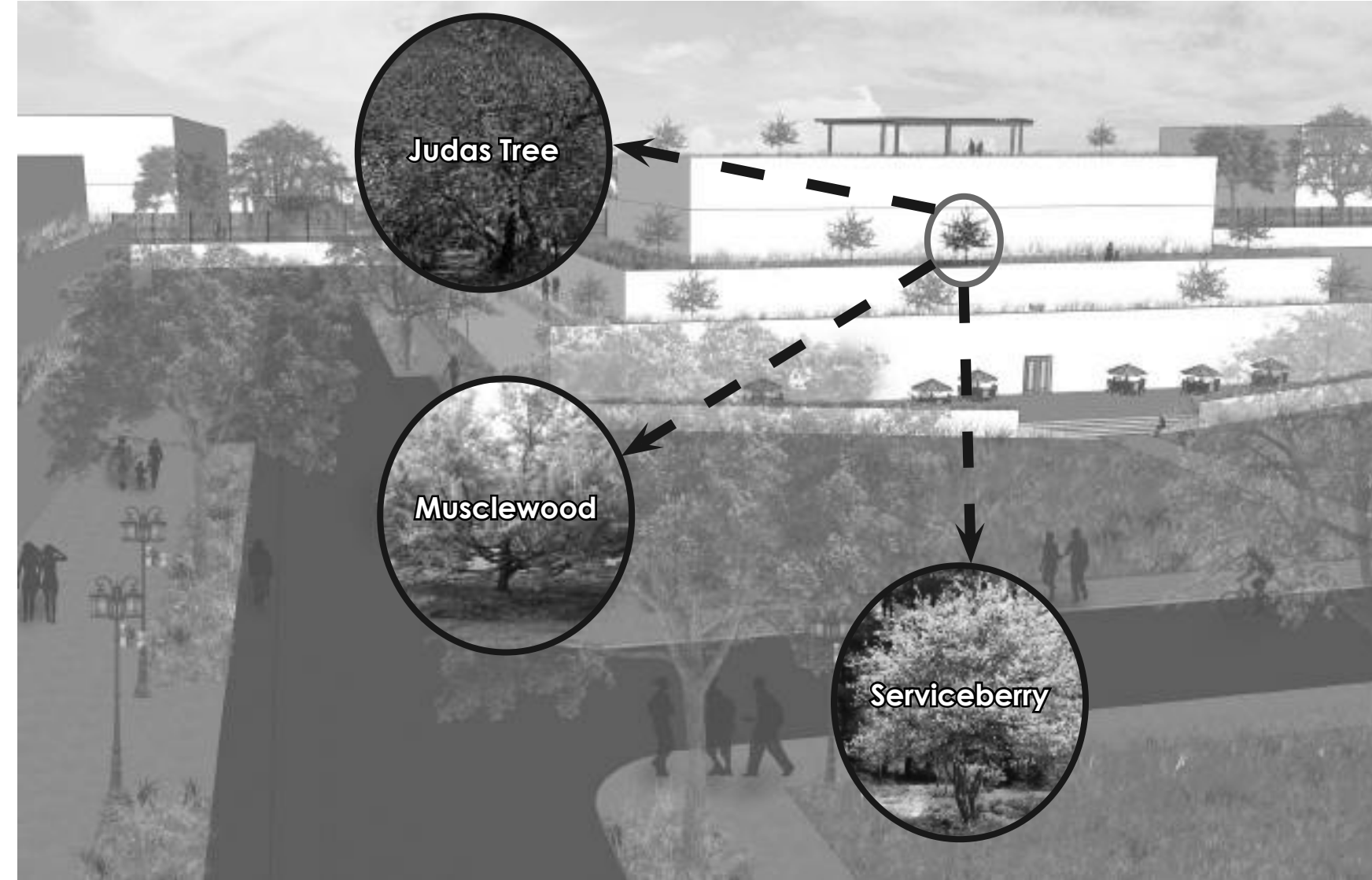
## PLANTING

GREEN ROOF TERRACE: STREET TREES



## PLANTING

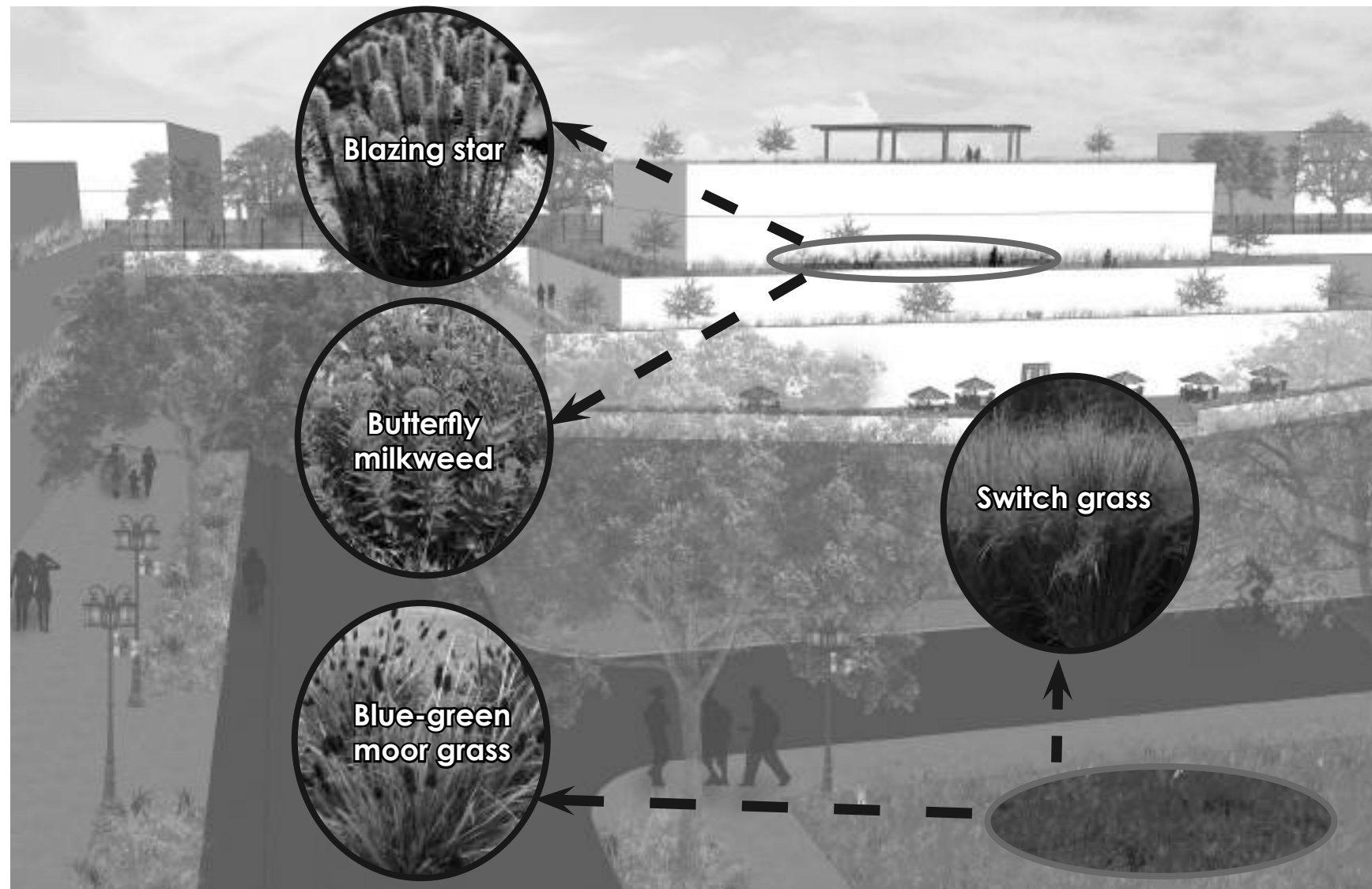
GREEN ROOF TERRACE: GREEN ROOF TREES





## PLANTING

### GREEN ROOF TERRACE: PERENNIALS & GRASSES



### GREEN ROOF TERRACE: CONSTRUCTION DETAIL

NOTES: ROOFTOP TREES ARE A SPECIAL CATEGORY OF DEEP INTENSIVE SYSTEMS. WITH TOTAL SOIL SYSTEM DEPTH OF 20 INCHES OR MORE, THEY REQUIRE TWO DIFFERENT TYPES OF MEDIA TO PROVIDE THE RIGHT MIX OF AERATION AND ORGANIC MATTER FOR THE DEEPER ROOT ZONE. THE TOP LAYER CAN BE INSTALLED DIRECTLY ON TOP OF THE BASE LAYER WITHOUT USING A SEPARATION FABRIC, SIMILAR TO NATURAL SOIL PROFILES WITH DIFFERENT HORIZONS THAT HAVE SPECIFIC PROPERTIES.

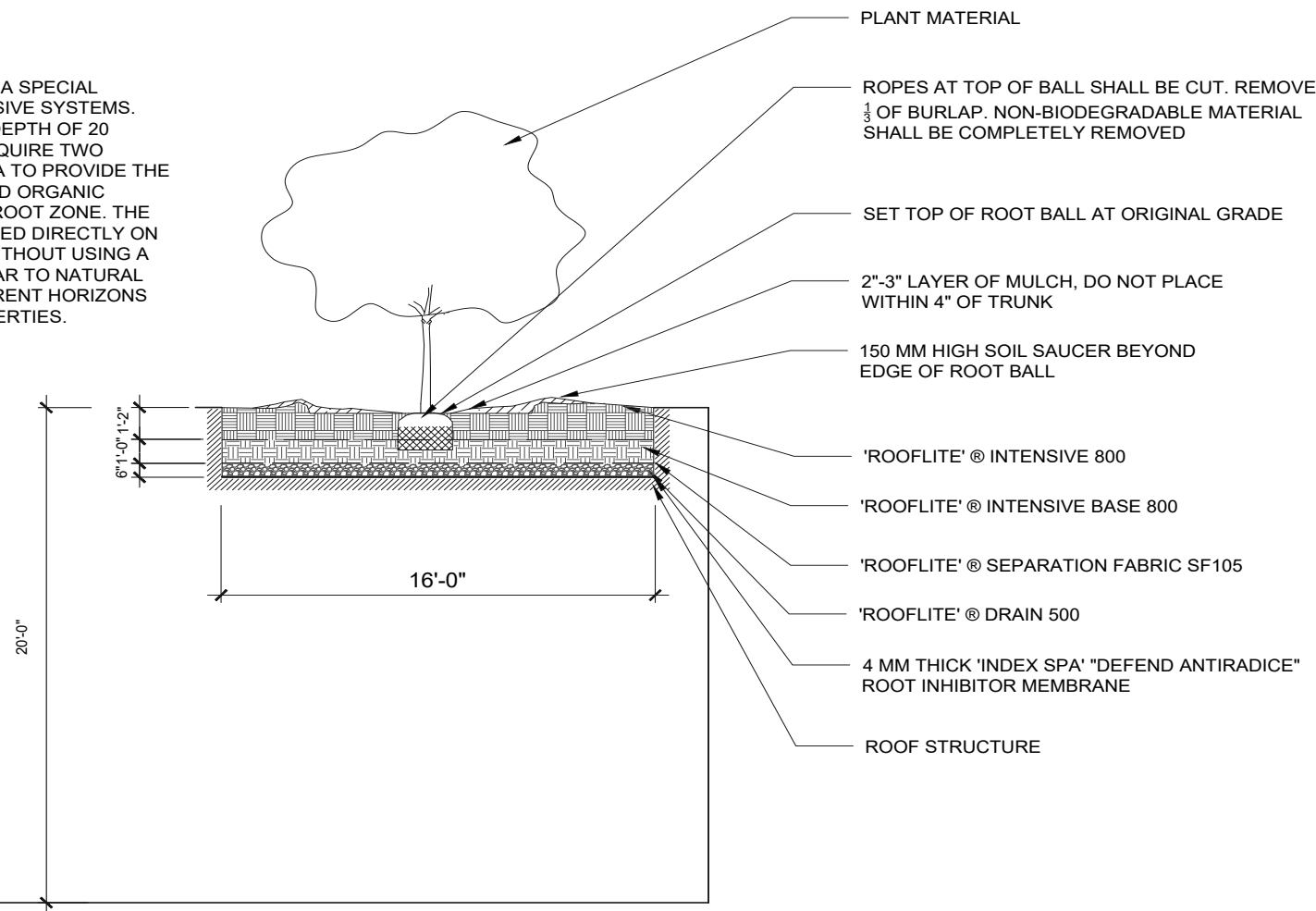


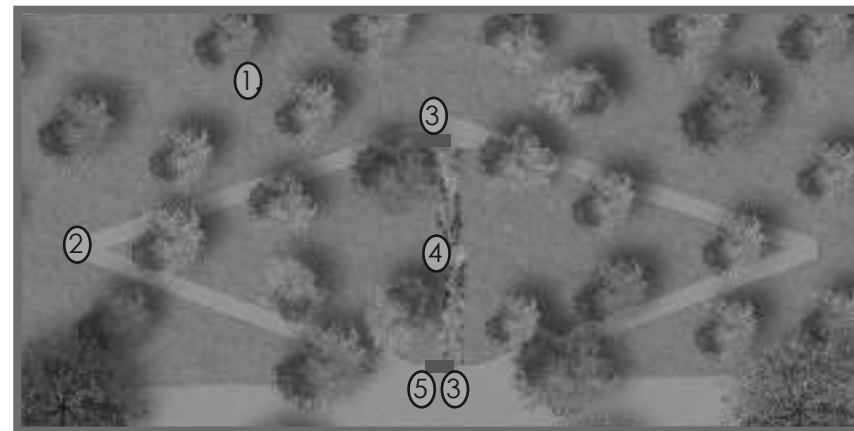
Figure 3.33

# SITE PLAN



## STORMWATER MANAGEMENT PHYTOREMEDIATION PARK

- ① Poplar forest
- ② Signage throughout the park describes the process of phytoremediation
- ③ Sunken fountains
- ④ Swale with stones inside becomes water feature
- ⑤ Pump below bottom fountain recirculates water to the top fountain

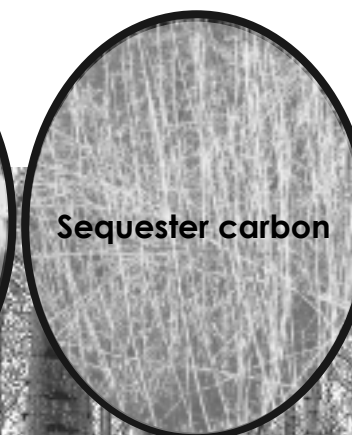


## STORMWATER MANAGEMENT PHYTOREMEDIATING PLANTS

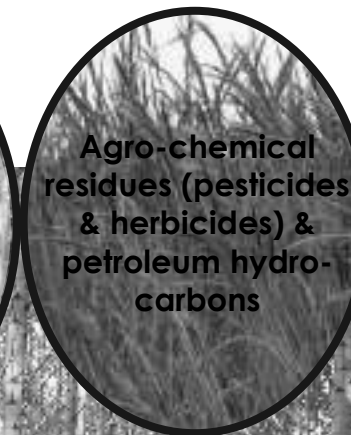
Indian mustard



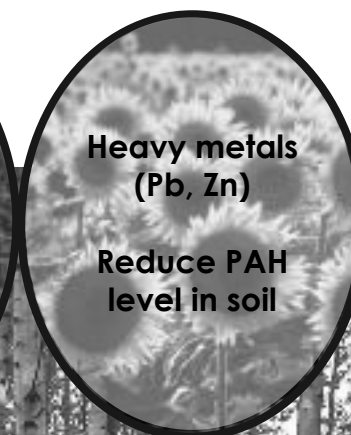
Yellow dogwood



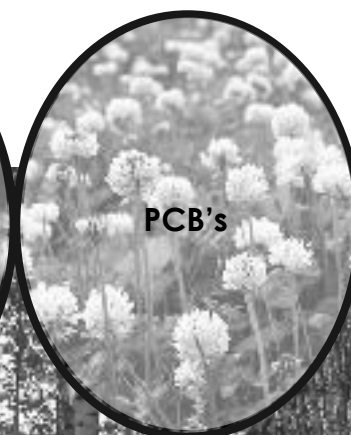
Indian grass



Sunflower



White Clover



## POPLARS

Well designed root system takes up large quantities of water. They can degrade chlorinated solvents & petroleum hydrocarbons

Figure 3.34

# SITE PLAN



## STORMWATER MANAGEMENT

### PHYTOREMEDIATION PARK: MICRO-WATERSHEDS

Water movement Determines placement of water collection systems

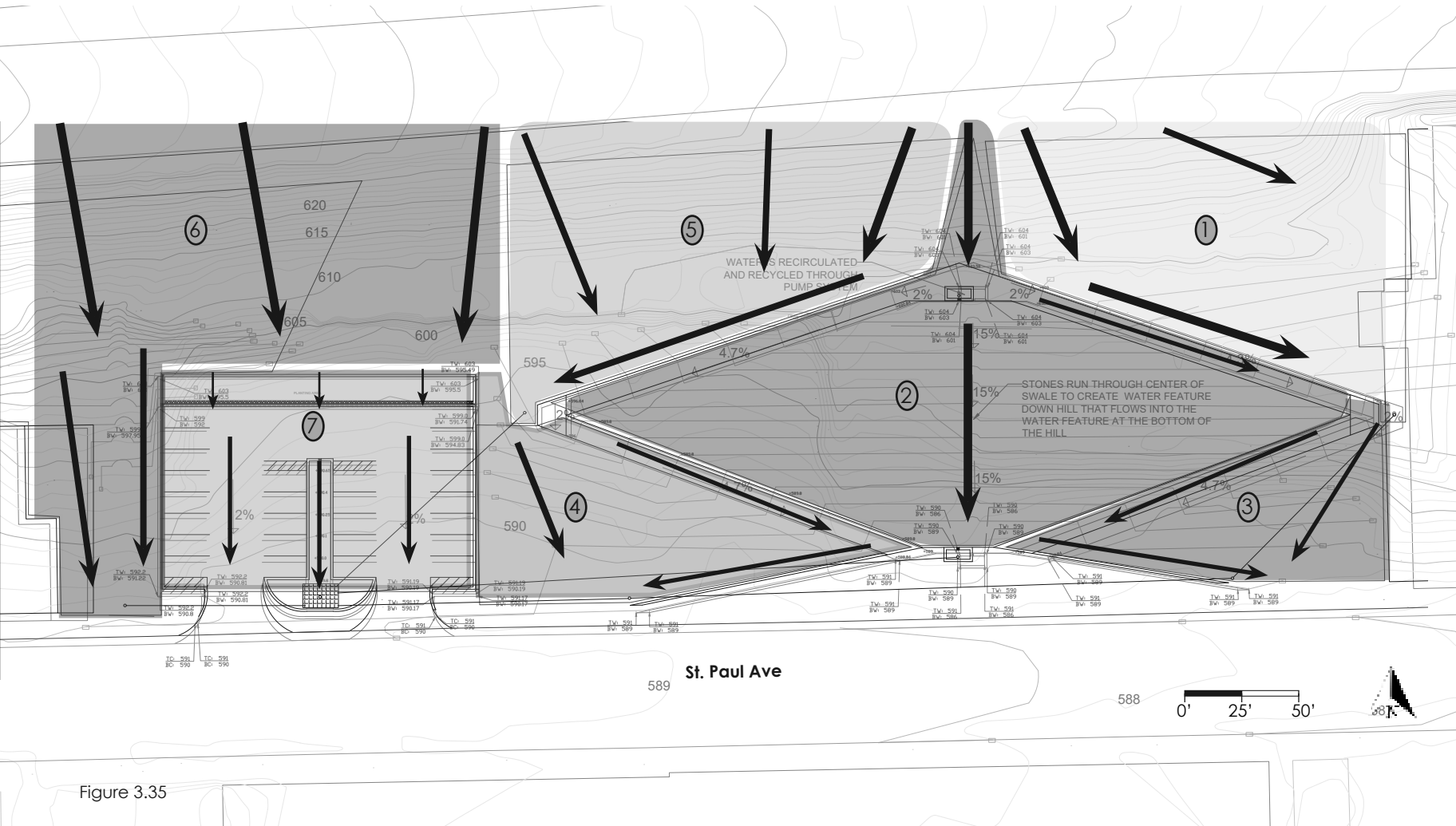


Figure 3.35

### PHYTOREMEDIATION PARK: PIPE SIZES

Micro Watershed	Type	C Value	Area	I	Acres	CIA Value	Post Q	Pipe size
1	grass	0.4	14910	6	43560	35784	0.82	6"
2	Native veg	0.35	19684	6	43560	41336.4	0.949	
2	permeable paving	0.4	2492	6	43560	5980.8	0.137	
2 (TOTAL)							1.086	8"
3	Native veg	0.35	6223	6	43560	13068.3	0.3	4"
4	Native veg	0.35	8754	6	43560	18383.4	0.42	5"
5	grass	0.4	14575	6	43560	34980	0.8	6"
6	grass	0.4	2621	6	43560	6290.4	0.14	
6	Native veg	0.35	14671	6	43560	30809.1	0.707	
6 (TOTAL)							0.847	6"



## STORMWATER MANAGEMENT

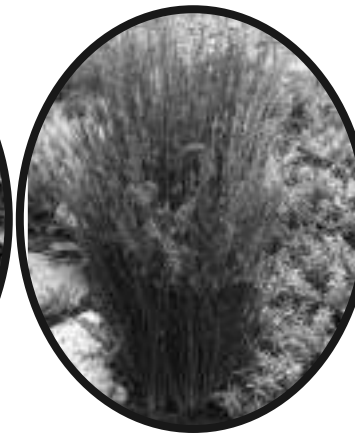
### PHYTOREMEDIATION PARK: COLLECTION SYSTEMS

#### DESIGN STRATEGY:

Using natural and man made stormwater direction and collection systems, I will filter and collect all of the water coming onto my site. Swales are at a slightly lower elevation than the natural grade, and therefore can be used in stormwater design to direct water into collection systems. I intend to use all native plants with longer roots, to help filter out contaminants from the storm-water runoff. I have strategically placed swales throughout the phytoremediation park in areas with a steeper grade where water will runoff and collect quicker. These swales will then direct the water into various drains, which lead into pipes that connect to my cistern.



*Spirea x bumalda*



*Juncus patens*



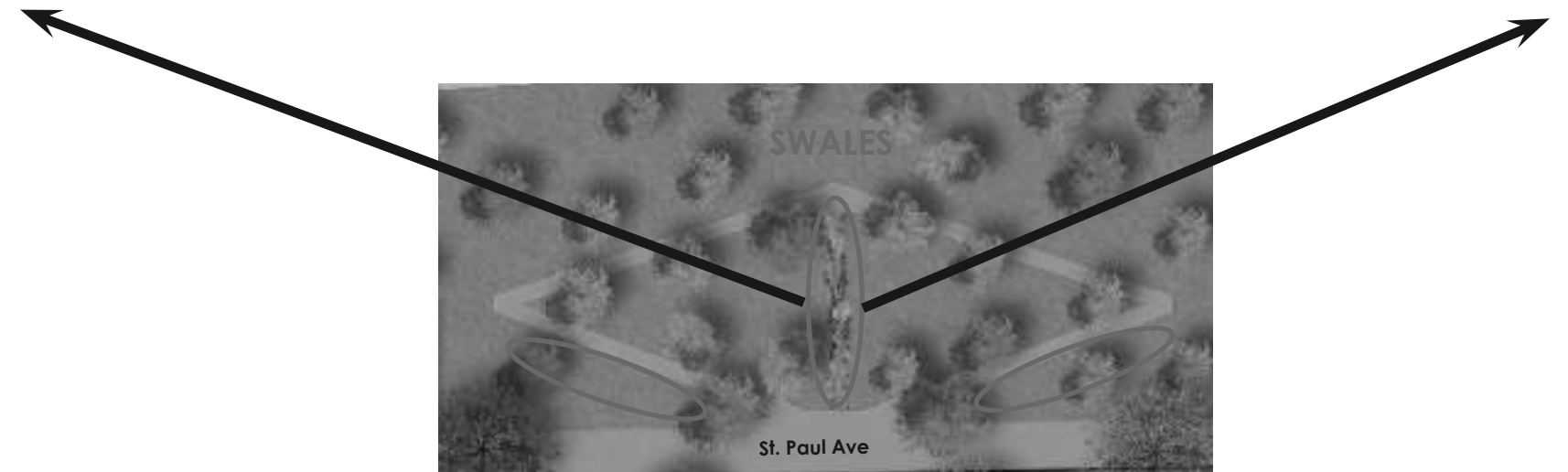
*Carex pensylvanica*



*Primula veris*



*Cornus sericea*



# SITE PLAN



## STORMWATER MANAGEMENT

### PHYTOREMEDIATION PARK: COLLECTION SYSTEMS

- Drain
- Pipe
- Cistern
- Water pump

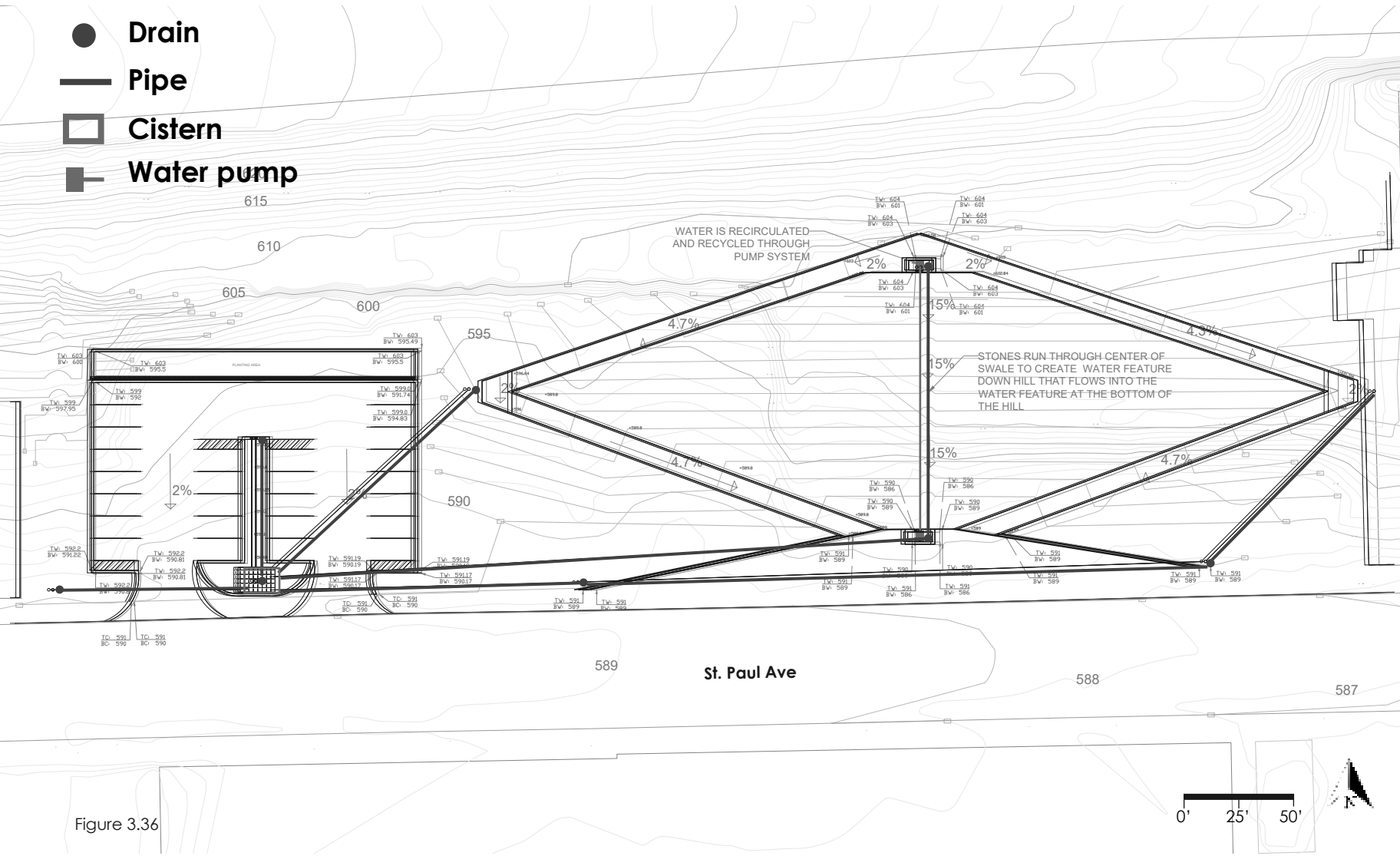


Figure 3.36

PRE Q & POST Q

POST Q - PRE Q = DELTA Q

$$90.129 - 200.82 = -110.69 \text{ CFS}$$

Proposed design plan will:

- Collect all stormwater runoff through pervious surfaces, drains & basins
- Decrease the degradation of the site & help filter out pollutants.

# SITE PLAN



## GRADING

- Existing contours  5'  
 1'
- Proposed contours  5'  
 1'

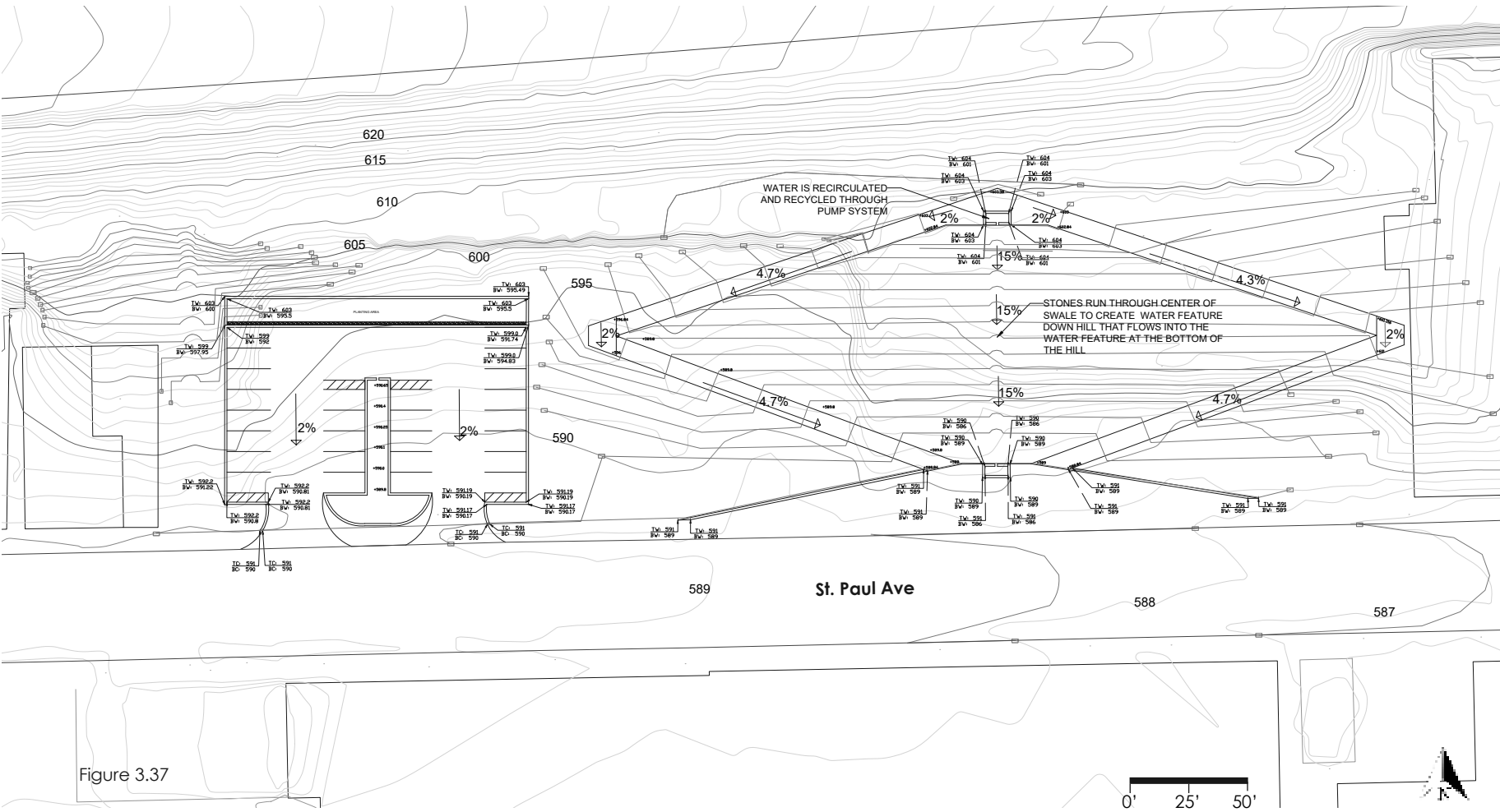


Figure 3.37



# SITE PLAN

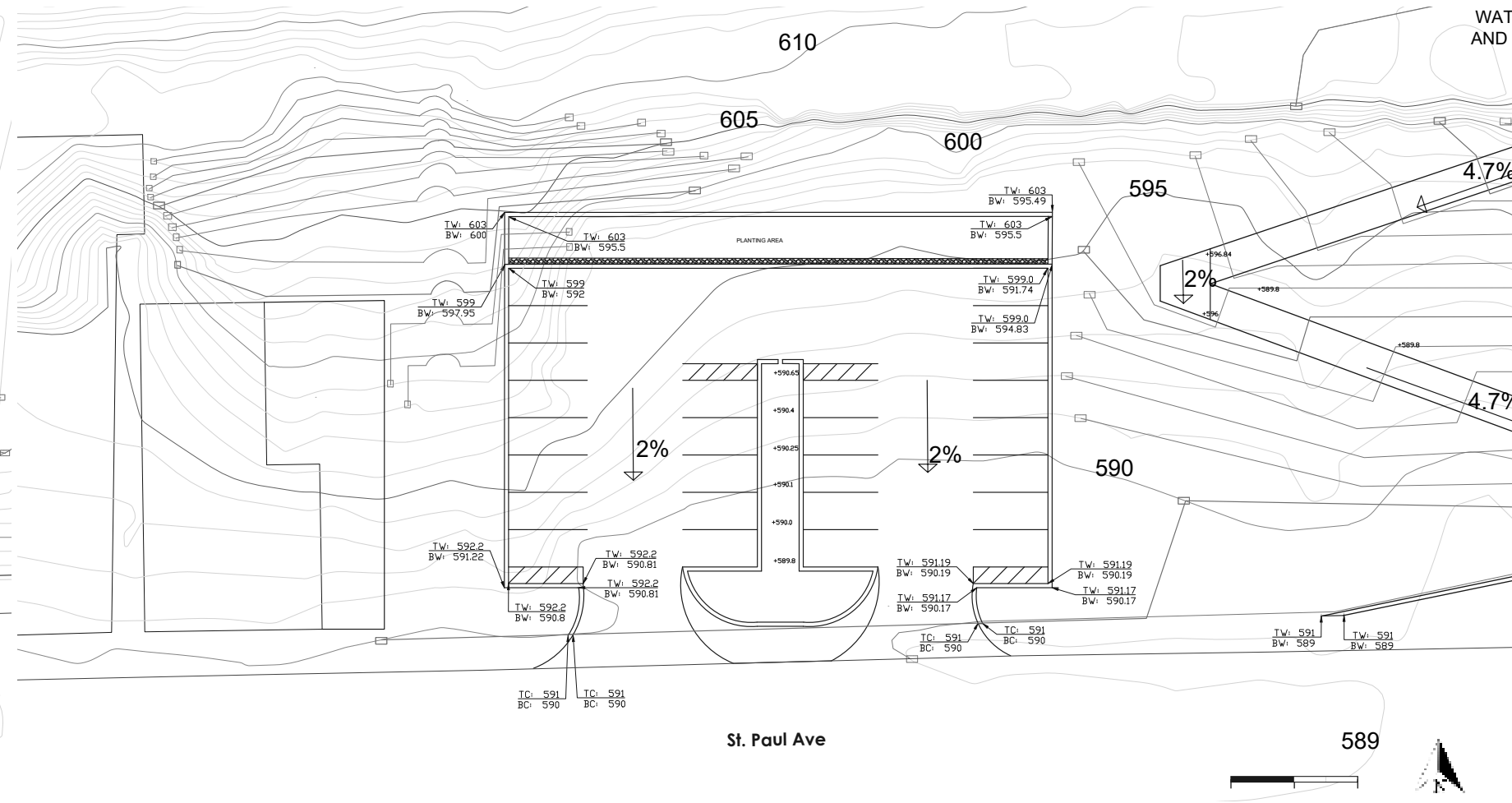
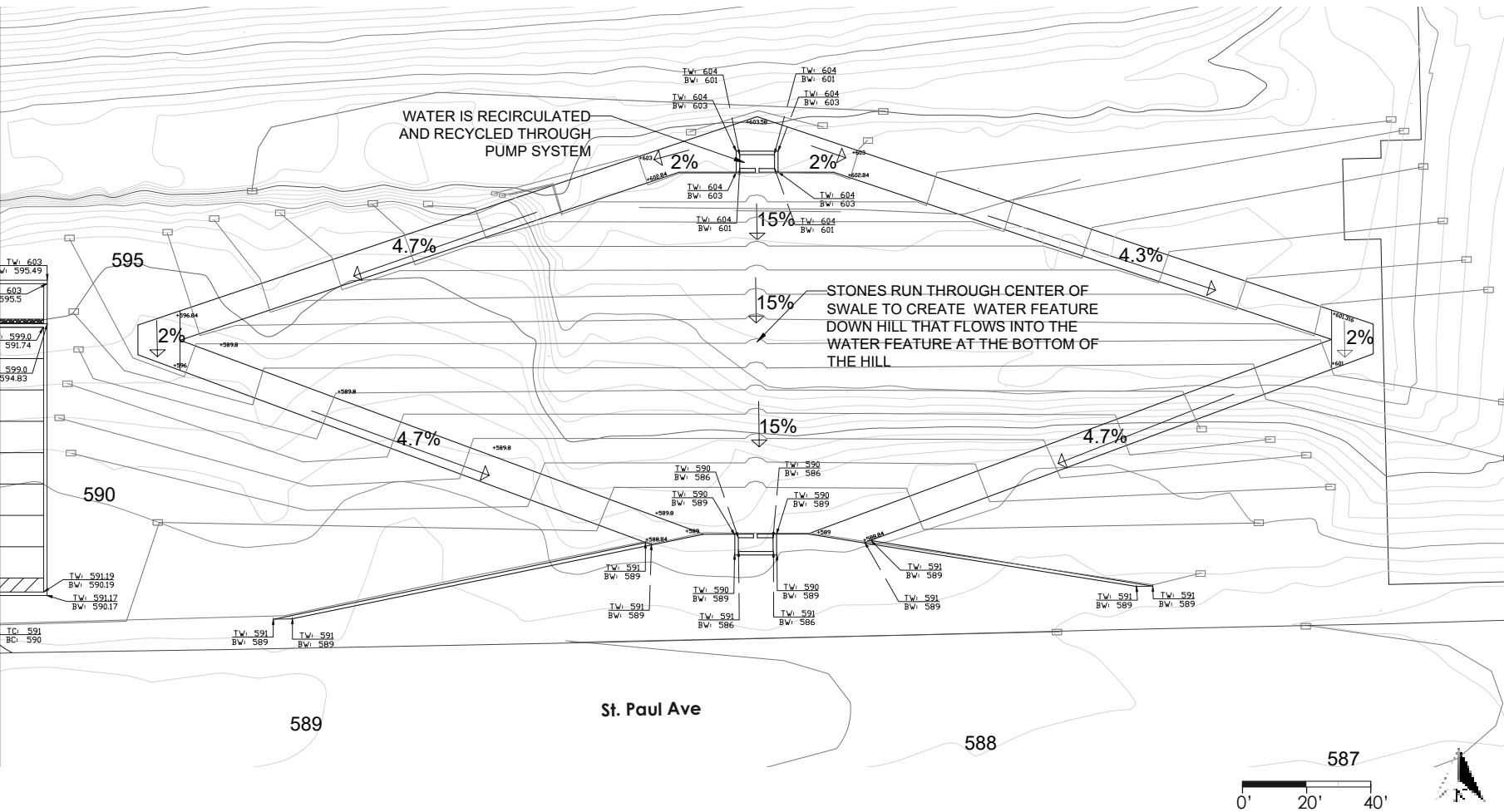


## GRADING: GOALS

- STABILIZE SLOPE
- ADA ACCESSIBLE PATHS
- EDUCATION NODES



- MORE PARKING SPACES
- PERVIOUS PAVEMENT
- PLANTING BEDS



# SITE PLAN



## GRADING: PHYTOREMEDIATION PARK

- URBAN CONTAMINATED SOILS
- PHYTOREMEDIATING PLANTS
- DISCARD ALL CUT SOIL

CUT ■  
FILL ■

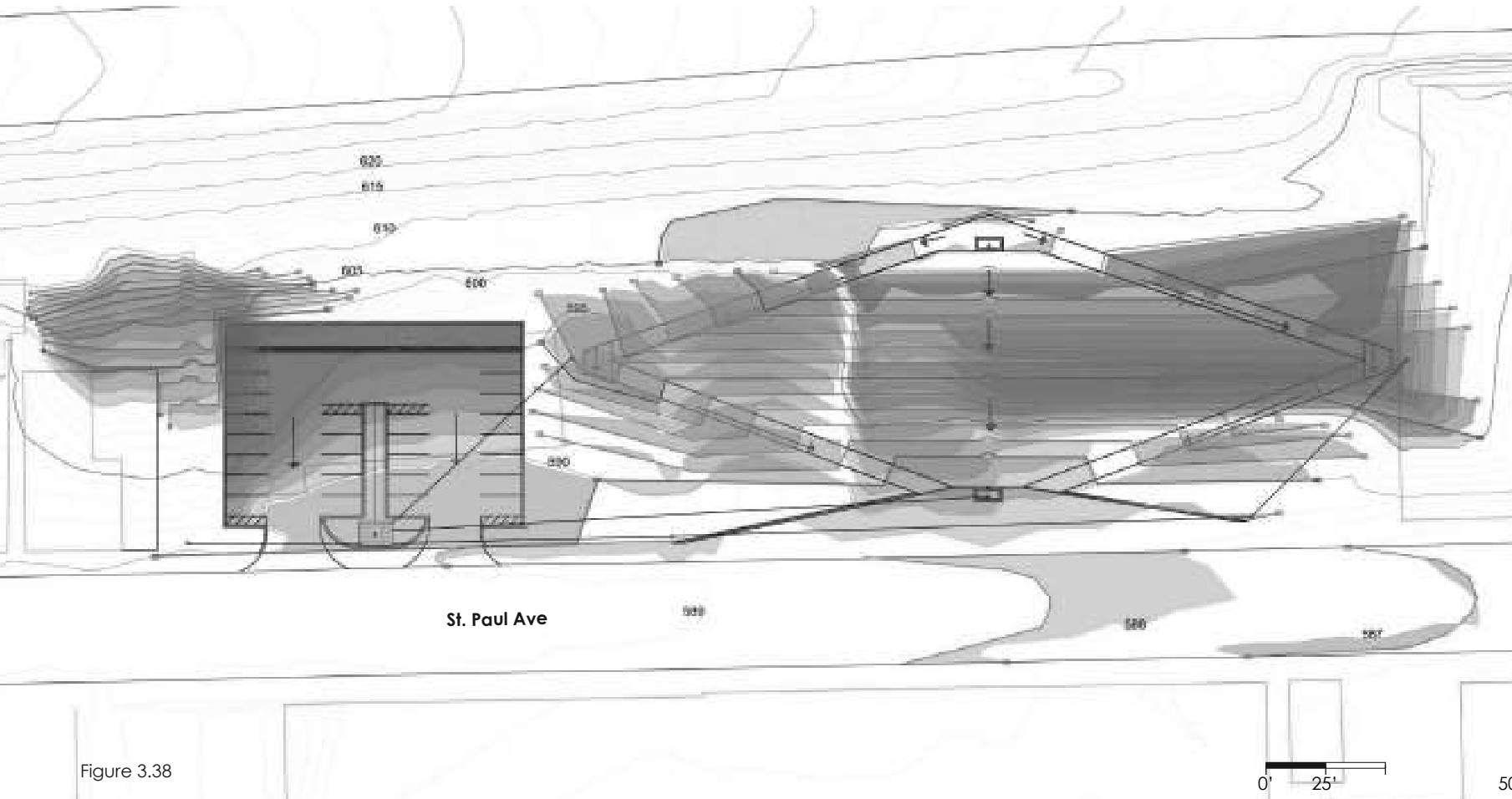


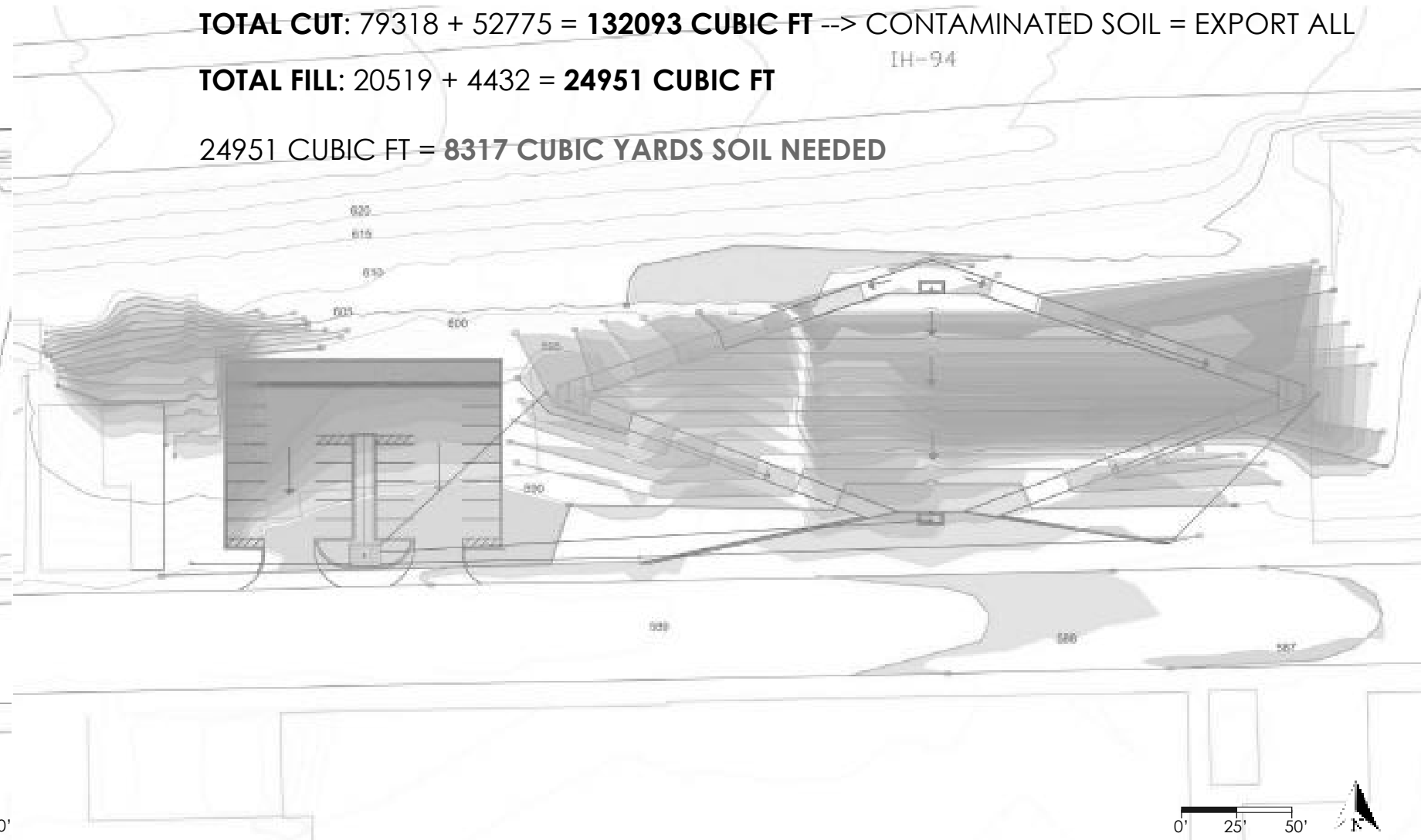
Figure 3.38

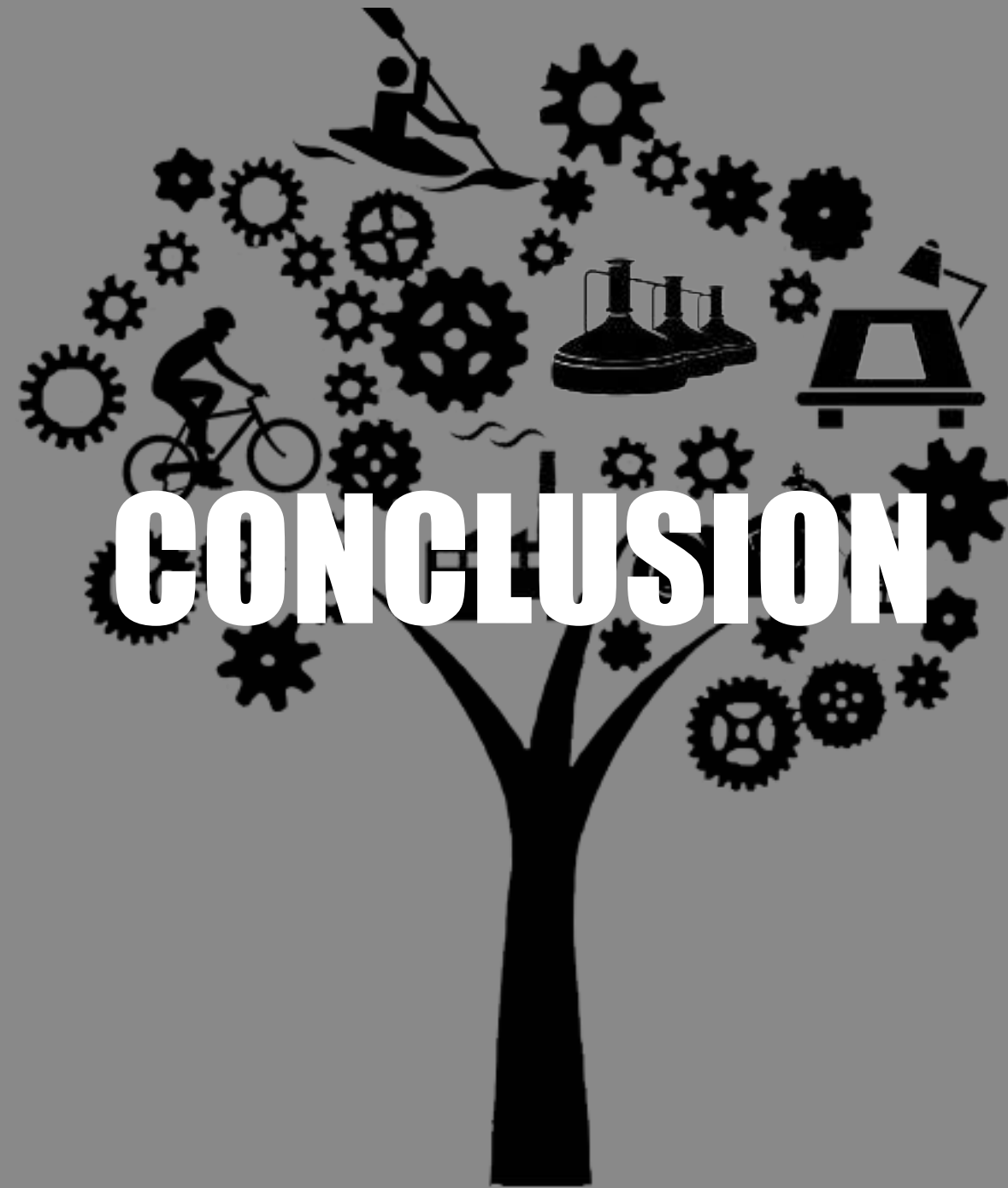
## CUT & FILL

**TOTAL CUT:** 79318 + 52775 = **132093 CUBIC FT** --> CONTAMINATED SOIL = EXPORT ALL

**TOTAL FILL:** 20519 + 4432 = **24951 CUBIC FT**

24951 CUBIC FT = **8317 CUBIC YARDS SOIL NEEDED**





# CONCLUSION

## ST. PAUL AVENUE REVITALIZATION:

**PROMOTE** green infrastructure & the Valley's strong historic culture

**ENHANCE** street aesthetic & pedestrian experience

**STRENGTHEN** regional connections





## FIVE ASPECTS OF REFLECTIVE LEARNING

### 1) Content Reflection:

The information & data in the analysis and design aspects of my project is accurate. The data used to show trends in regional, community and site analysis was processed using GIS, making it both accurate and up to date. The design portion of my capstone was based off of stormwater calculations, soil data and vegetation data from the Menomonee River Valley. The information and data in my capstone is for the most part complete, however there are some aspects that I could've touched on more. I could've included more information about the quality of the river and the health of the fish and vegetation residing within it. For the most part the information and data in my capstone project reflects the social, ecological and political complexities of the project. The analysis portion of my capstone looks at different social, ecological and political conditions, and proposes new goals and programming to improve each of these aspects. Then the design portion of my capstone attempts to successfully address these goals through strategic design strategies and planning.

### 2) Process Reflection:

I worked at three different scales for my analysis, depending on the size of the area I was analyzing. For my regional analysis I looked at the city at Milwaukee, which was appropriate for my project. Looking at the socio-economic data of Milwaukee over time and across different neighborhoods was important to the analyzation of my specific site, which resides in the middle of 3 diverse communities. For my community analysis I zoomed in on the Menomonee River Valley, which directly affects every design decision I made about my project site. This scale worked well, since it examines the history of the area in which my site emerged, and how that history affected current site conditions. The scale of my master plan is also appropriate, as it extends my project area from just St. Paul Avenue to the Menomonee River which is 2 blocks away.

It made sense for me to extend the project boundary to the River, since it is a underutilized natural resource that is currently surrounded by storage lots. This provides a lot of opportunities to connect my site to the river, and potentially draw more people from a wider area. The proposed programming is appropriate in reflecting the goals my client and I discussed and outlined earlier in this document. The programming aids in revitalizing my area into a more functional and aesthetically pleasing space. My master plan design is more of a conceptual look at what that larger area could look like after revitalization efforts. My site plan is very refined, and has specific programming associated with it. The history of the Menomonee River Valley is long and unique, and I tried to express as much of this history as was possible. There would definitely be value in revisiting the hydrological, vegetative and soil history of the area and getting more in depth if I had more time. The soils data on the area is very general because it is located in an urban area, and would be difficult to properly test. I did revisit the inventory/ analysis of my site that I worked on first semester in order to make design decisions for this semester. My analysis informed all of my design concepts and programming this semester. Since my project area is near my family's home in Milwaukee, and is directly next to the highway that I drive from Madison and Milwaukee on, I made frequent visits to my site throughout this whole year. It was good to see the site through Wisconsin's seasons. At the end of last semester I explored a couple different conceptual alternatives, and ended up with a design concept that combined these conceptual ideas.

# CONCLUSION



## FIVE ASPECTS OF REFLECTIVE LEARNING

### 3) Premise Reflection:

I included the most relevant and informative sources to my project area in my capstone. There is always more research to be done, but with the limited amount of time that we had this year, I feel that my research covered a lot of ground and helped support my design concepts and programs. The client's goals mainly addressed the pedestrian experience and problems with stormwater management on St. Paul Avenue, which I addressed and expanded on. My client was well aware of the historical issues that prompted the degradation of the valley, and also is a part of the current revitalization efforts. My analysis and design ideas worked off of this knowledge to delve deeper into my specific site on and around St. Paul Avenue. The precedent project of the Pabst Brewery restoration is especially applicable to my project site, and helped guide some of my design goals and focuses.

### 4) Self Reflection:

At first I was very overwhelmed by the vast scope and requirements that a capstone project demands, but as I got further into the process these worries subsided. I am originally from Milwaukee Wisconsin, so it was fun getting to work on a project site that I knew well and was passionate about. It was really awesome working on plans to make Milwaukee a better, more unified city. My vision for this project got me excited about the future of Milwaukee after project like this one encourage the enhanced cohesion of people, neighborhoods and environments.

The amount of freedom that this capstone project gives you in terms of conceptual design was both exciting and terrifying. I was expected to pull all of the knowledge I had learned in my courses over the years to complete one all encompassing project. Without as much guidance from our teachers this year, this was challenging but also forced me to rely on my self and focus on time management.

### 5) Cross-cultural Self Reflection:

Milwaukee is an incredibly diverse city that has struggled with merging these different communities together. Milwaukee is one of the most segregated cities in the United States, which is a dismal and depressing statistic that needs to be addressed and changed. Landscape architecture is one way to start this conversation, and to help mend the trust between divided communities. My project site is located in the Menomonee river valley, which is surrounded by densely populated neighborhoods. The North side of Milwaukee is predominantly African American, the South side is predominantly Latino, and the East and West sides are predominantly white. I tried to address some of these race issues in my project by brainstorming ways to make all of these different communities feel welcome and at home in my site. This was a challenge, and something that I wish I had spent more time researching. 16th Street was a focus area in my master plan and connects directly to the Marquette campus and the South side. If I had more time I would have liked to look closer at my site's connection to the south side neighborhoods.

# GRANTS



## EPA GRANT:

Remediation of a brown field includes the removal or sealing off of that contaminant so that a site may be used again without health concerns. Grants are available from the EPA for brownfields (like the Menomonee River Valley) after addressing hazardous existing site conditions.

Remediation starts by looking at the property's past uses and identifying possible contaminants. The Menomonee River Valley has a long history of industrial and manufacturing use, which overtime led to its degradation. This grant would be very applicable to parts of the valley that have yet to be revitalized.

## FUND FOR LAKE MICHIGAN

A grant of \$74,500 was given to the "City of Two Rivers" in 2016 to develop a preliminary design for Water Quality and Green Stormwater Infrastructure at a former factory site (Hamilton Manufacturing Company) on the East Twin River between downtown and the harbor in Wisconsin. The city will develop plans for stormwater management, public access, and riverfront green space for the 12-acre site. My project site is very similar to this site described, since it has older manufacturing buildings still on site, and is located right next to a river that feeds into Lake Michigan. This would make my project area applicable to similar grants.



# GRANTS



## FUND FOR LAKE MICHIGAN

The Milwaukee Riverkeeper was given \$52,000 to monitoring water quality for the Milwaukee River Basin TMDL. This allocated money will help the Milwaukee Riverkeeper group to expand its volunteer quality monitoring program to help track progress toward the recently-released TDMLs.

My project site is located next to the Menomonee River, which is a part of the Milwaukee River Basin and actually converges with the Milwaukee river itself. This means that my site and the Menomonee river could benefit from this grant.



## FUND FOR LAKE MICHIGAN

In 2016, a grant for \$47,000 was given to the Harbor District, Inc for harbor district waterway improvements. This grant will support the Harbor Districts continuing efforts to revitalize and sustainably redevelop Milwaukee's Inner Harbor by "promoting habitat improvements, new recreational opportunities, green stormwater infrastructure, and an innovative "Trash Wheel" to remove garbage from the Kinnickinnic River before it enters the harbor. This grant would be directly applicable to my project, because my site is located around the same area, and I have proposed some of the programming they've listed above. Stormwater runoff is a key concern for my project site, and this grant could help make some of my ideas and sustainable design plan come to life.



# CONCLUSION



## FUTURE DESIGN & PLANNING IMPACTS

My capstone offers longer range planning, design and programming ideas and concepts to give people a snapshot of how cool this area could be in the next 50 years, with a little financial aid and a strong design vision. As seen in my phasing strategies, I have mapped out three possible planning phases for this project. The first phase has already begun, with smaller scale streetscape improvements. Phase 2 and phase 3 should be used to help people visualize the possibilities of larger improvements, and the affect these improvements would have on the Menomonee Valley itself, as well as the whole of the city of Milwaukee.

People are used to seeing this area as it is now, but my project will give them more insight on how these changes would not only be wanted by the community, but also needed by the community. These changes surround the ideas of drastically beefing up the green infrastructure on my project site as well as enhancing and increasing the connectivity of the site within itself and to surrounding regional amenities. This would bring a huge economic boom to the Valley, as well as immense ecological benefits for the Valley currently and into the future.



Figure 3.39

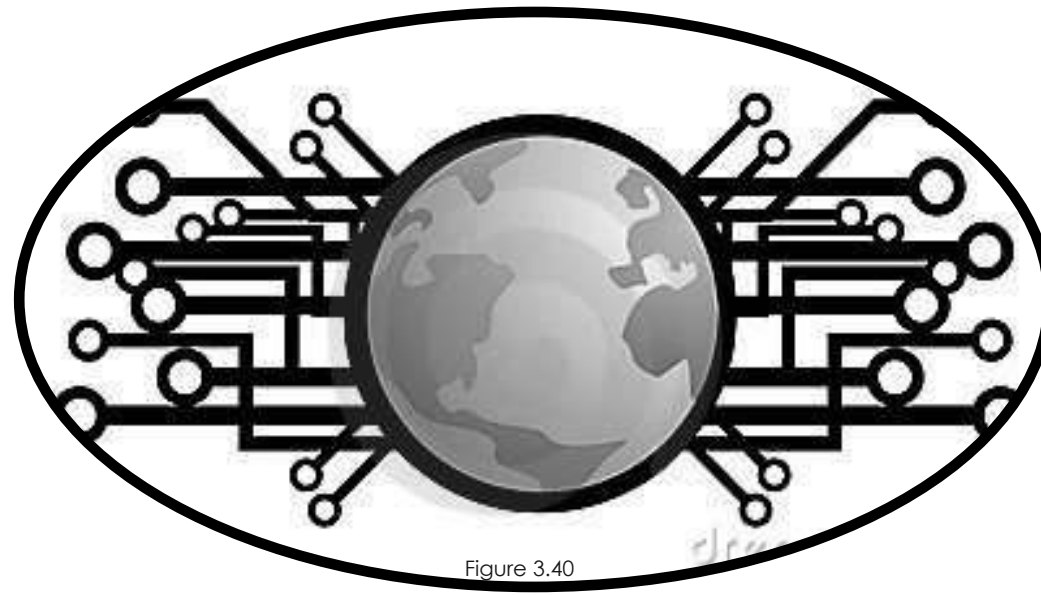


Figure 3.40



Figure 3.41



# APPENDIX

1. Grading & Drainage Calculations
2. Time Logs
3. Graphic Figures
4. Literature References

# TIME LOG: WEEK 1-9

Mara Redding					
Senior Capstone, Fall 2016					
Day	Date	Task/Work Code	Hours Worked	Travel Time	Cumulative Totals
Code: D (design), P (presentation/prop), M (meeting), T (travel), O (organization/assist), W (writing/other)					
<b>Week 1</b>					
	9.7.16	O	1.50	0.00	1.5
	9.12.16		0.50	0.00	1.5 hrs
		<b>Total week 1</b>	<b>1.00</b>	<b>0.00</b>	<b>1.50</b>
<b>Week 2</b>					
	9.14.16	O	2.00	1.00	1
			0.50	0.00	
		<b>Total week 2</b>	<b>1.00</b>	<b>1.00</b>	<b>2.50</b>
<b>Week 3</b>					
	9.19.16	O	1.00	0.00	
			0.50	0.00	
		<b>Total week 3</b>	<b>1.00</b>		<b>3.50</b>
<b>Week 4</b>					
	09.24.16	M	5.00		
	09.27.16	O: Workshop program	5.00		
		<b>Total week 4</b>	<b>10.00</b>		<b>13.50</b>
<b>Week 5</b>					
	10.2.16	O: Program & goals	0.50		
	10.4.16	O: LTR review	1.00		
	10.5.16	T: Site visit	1.50		
		<b>Total week 5</b>	<b>3.00</b>		<b>17.00</b>
<b>Week 6</b>					
	10.9.16	O: LTR Review	4.00		
	10.10.16	O: Proposa intro	2.00		
	10.11.16	O: Proposa intro	1.00		
		<b>Total week 6</b>	<b>7.00</b>		<b>24.00</b>
<b>Week 7</b>					
	10.14.16	T: Site visit	2.00		
	10.18.16	M/O: Precedent Study research	2.00		
		<b>Total week 7</b>	<b>2.00</b>		<b>26.00</b>
<b>Week 8</b>					
	10.23.16	M/O: Precedent Study	2.00		
	10.25.16	O: Inset plan layout	1.00		
	10.25.16	O: Regional context work	3.00		
		<b>Total week 8</b>	<b>6.00</b>		<b>32.00</b>

**TOTAL # HOURS=**  
**210 HOURS**



## CUT/ FILL VOLUMETRIC CALCULATIONS

PHYTOREMEDIATION PARK		PARKING LOT	
<b>FILL:</b>	<b>CUT:</b>	<b>FILL</b>	<b>CUT:</b>
103	4432	4432	728
387	9723		1037
975	9528		3235
1817	8731		4470
2222	7711		5729
2573	6677		6913
2064	5280		8046
110	3590		9161
1496	2239		351
381	1791		524
1316	1602		782
958	1874		1034
992	42		1324
56	7		1630
837	1864		1821
414	178		1857
115	2253		1516
93	584		1336
499	34		680
74	2941		<u>601</u>
20	389		52775
2909	89		
<u>108</u>	2389		
20519	5365		
	5		
	<u>10082</u>		
	79318		

**TOTAL CUT:** 79318 + 52775= 132093 cubic ft --> contaminated soil= discard all

**TOTAL FILL:** 20519 + 4432= 24951 cubic ft

24951 cubic ft = 8317 cubic yards

8317 cubic yards x 1.5= **12,475.5 cubic yards of soil needed**

## STORMWATER MANAGEMENT CALCULATIONS

Site plan Pre-Q						
Type	C-Value	I	Area (Sq. Ft.)	CIA Value	Acres	PreQ
Grass/Native	0.35	6	142,944	300182.4	43560	6
Building	0.95	6	494,388	2818012	43560	64
Built/ Roads	0.85	6	1,113,839	5680579	43560	130
						200

Site plan Post-Q						
Type	C Value	Area	I	Acres	CIA Value	Post Q
Woods/ trees	0.1	70304	6	43560	42182.4	0.968
Swale/ Garden	0.15	160117	6	43560	144105.3	3.308
Lawn	0.4	144038	6	43560	345691.2	7.935
porous paving	0.5	248721	6	43560	746163	17.13
Green Roof	0.75	93250	6	43560	419625	9.633
Buildings w rec	0.8	128465	6	43560	616632	14.15
Impervious surfaces	0.85	138070	6	43560	704157	16.165
Buildings	0.95	159319	6	43560	908118.3	20.84
						90.129

DELTA Q:	PostQ	PreQ	DeltaQ
	90.129	200.82	-110.691

# APPENDIX



## SEMESTER 1 TIME LOG: WEEKS 1-10

Mara Redding  
Senior Capstone, Fall 2016

Day	Date	Task/Work Code	Hours Worked	Cumulative Totals
<b>Week 1</b>				
	9.9.16	O	1.50	1.5
	9.12.16		0.00	1.5 hrs
<b>Total week 1</b>			<b>1.50</b>	1.50
<b>Week 2</b>				
	9.14.16	O	2.00	1
			0.00	
<b>Total week 2</b>			<b>1.00</b>	2.50
<b>Week 3</b>				
	9.19.16	O	1.00	
			0.00	
<b>Total week 3</b>			<b>1.00</b>	3.50
<b>Week 4</b>				
	09.24.16	M	5.00	
	09.27.16	O: "Workflow diagram"	5.00	
<b>Total week 4</b>			<b>10.00</b>	13.50
<b>Week 5</b>				
	10.2.16	O: Program & goals	5.00	
	10.4.16	O: Lit review	1.00	
	10.5.16	T: Site visit	1.50	
<b>Total week 5</b>			<b>7.50</b>	21.00
<b>Week 6</b>				
	10.9.16	O: Lit Review	4.00	
	10.10.16	O: Proposal Intro	2.00	
	10.11.16	O: Proposal Intro	1.00	

<b>Total week 6</b>			<b>7.00</b>	28.00
<b>Week 7</b>				
	10.14.16	T: Site Visit	2.00	
		W/O: Precedent Study		
	10.18.16	research	2.00	
<b>Total week 7</b>			<b>2.00</b>	30.00
<b>Week 8</b>				
	10.23.16	W/O: Precedent Study	2.00	
	10.25.16	O: In design layout	1.00	
		O: Regional analysis		
	10.25.16	work	3.00	
<b>Total week 8</b>			<b>6.00</b>	36.00
<b>Week 9</b>				
		O: Regional analysis		
	10.27.16	work	2.00	
	10.29.16	O: Regional/ community	2.00	
		O: Regional analysis		
	10.30.16	work	10.00	
		O: Regional/ community		
	10.31.16	analysis work	6.00	
		O: Regional/ community		
	11.1.16	analysis work	2.00	
<b>Total week 9</b>			<b>22.00</b>	58.00
<b>Week 10</b>				
	11.5.16	O: Site analysis work	4.00	
	11.6.16	M: Meeting with client	1.50	
	11.6.16	O: Site analysis work	4.00	
	11.7.16	O: Site analysis work	2.00	
	11.9.16	O: Site analysis work	3.00	

## SEMESTER 1 TIME LOG: WEEKS 10-17

<b>Week 11</b>				
	11.10.16	O: Site analysis work	3.00	
	11.12.16	O: Site analysis work	5.00	
	11.13.16	O: Site analysis work	7.00	
	11.14.16	O: Site analysis work	5.00	
	11.15.16	O: Site analysis work	3.00	
	11.16.16	O: Site analysis work	7.00	
	11.17.16	M: Meeting with Eric	1.50	
<b>Total week 11</b>			<b>31.50</b>	104.00
<b>Week 12</b>				
	11.17.16	O: Site analysis work	2.00	
	11.19.16	O: Site analysis work	2.00	
	11.20.16	O: Site analysis work	4.00	
	11.21.16	O: Site analysis work	3.00	
<b>Total week 12</b>			<b>11.00</b>	115.00
<b>Week 13</b>				
	11.26.16	P: Site analysis work	2.00	
	11.27.16	P: Presentation Doc	4.50	
	11.28.16	P: Presentation Doc	3.50	
	11.29.16	P: Presentation Doc	3.00	
	11.30.16	P: Presentation Doc	6.00	
<b>Total week 13</b>			<b>19.00</b>	134.00
<b>Week 14</b>				
	12.1.16	P: Presentation prep	2.00	
	12.2.16	P: Presentation prep	1.00	
	12.3.16	P: Presentation prep	5.00	
	12.4.16	P: Presentation prep	4.00	

	12.5.16	P: practice Presentation	5.00	
	12.6.16	P: Presentation prep	4.00	
	12.7.16	P: Presentation prep	2.00	
<b>Total week 14</b>			<b>23.00</b>	157.00
<b>Week 15</b>				
	12.8.16	P: Presentation prep	6.00	
	12.9.16	P: Presentation prep	5.00	
	12.10.16	P: Presentation prep	4.00	
	12.11.16	P: Presentation prep	7.00	
	12.12.16	Presentation day	8.00	
<b>Total week 15</b>			<b>30.00</b>	187.00
<b>Week 16</b>				
	12.15.16	O: Document work	4.00	
	12.16.16	O: Document work	4.00	
	12.18.16	O: Document work	5.00	
	12.19.16	O: Document work	10.00	
<b>Total week 16</b>			<b>23.00</b>	210.00
<b>Week 17</b>				
<b>Total week 17</b>			<b>0.00</b>	<b>210.00</b>

**1st Semester= 210 Hours**

# APPENDIX



## SEMESTER 2 TIME LOG: WEEKS 1-10

Mara Redding Senior Capstone, Spring 2017				
Day	Date	Task/Work Code	Hours Worked	Cumulative Totals
<b>Week 1</b>				
	01/15/17	O	5.00	
	01/16/17	O	5.00	
	1/17/2017	O	5.00	
<b>Total week 1</b>			<b>15.00</b>	15.00
<b>Week 2</b>				
	01/22/17	O, D	5.00	
	01/23/17	O, D	6.00	
	01/24/17	O, D	3.00	
	01/25/17	O, D	6.00	
<b>Total week 2</b>			<b>20.00</b>	35.00
<b>Week 3</b>				
	01/29/17	D	4.00	
	01/30/17	D, O	7.00	
	1/31/2017	D	2.00	
	2/1/2017	D	8.00	
	2/2/2017	D	4.00	
<b>Total week 3</b>			<b>25.00</b>	60.00
<b>Week 4</b>				
	02/06/17	D	8.00	
	02/07/17	D	7.00	
	02/08/17	D	4.00	
	02/09/17	D	8.00	
	02/10/17	D	5.00	
<b>Total week 4</b>			<b>32.00</b>	92.00
<b>Week 5</b>				
	02/13/17	D	5.00	
	02/14/17	O, D	5.00	
	2/15/2017	O, D	5.00	

	02/16/17	D	5.00	
<b>Total week 5</b>			<b>20.00</b>	112.00
<b>Week 6</b>				
	02/20/17	D, O	8	
	2/21/2017	D, O	7	
	2/23/2017	D, O	4	
	2/24/2017	D, O	8	
	2/25/2017	D, O	6	
<b>Total week 6</b>			<b>19.00</b>	131.00
<b>Week 7</b>				
	02/27/17	D, O	5	
	3/2/2017	D, O	7	
	3/3/2017	D, O	4	
	3/4/2017	D, O	6	
<b>Total week 7</b>			<b>22.00</b>	153.00
<b>Week 8</b>				
	3/6/2017	D, O	7	
	3/7/2017	D, O	8	
	3/8/2017	D, O	8	
	3/9/2017	D, O	7	
	3/10/2017	D, O	10.00	
<b>Total week 8</b>			<b>40.00</b>	193.00
<b>Week 9</b>				
	3/12/2017	D	5.00	
	3/13/2017	D	4.00	
	3/14/2017	D	8.00	
	3/16/2017	D	7.00	
<b>Total week 9</b>			<b>24.00</b>	217.00
<b>Week 10</b>				
	3/20/2017	O, D	10.00	
	3/21/2017	D	6.00	
	3/23/2017	D	9.00	
	3/24/2017	D	7.00	

## SEMESTER 2 TIME LOG: WEEKS 11-17

<b>Total week 10</b>			<b>32.00</b>	249.00
<b>Week 11</b>				
	3/27/2017	D	10.00	
	3/28/2017	D	10.00	
	3/30/2017	O	12.00	
	3/1/2017	D	6.00	
<b>Total week 11</b>			<b>38.00</b>	287.00
<b>Week 12</b>				
	4/2/2017	D	10.00	
	4/4/2017	D	9.00	
	4/5/2017	D	5.00	
	4/6/2017	D	7.00	
	4/7/2017	D	4.00	
	4/8/2017	D, O	13.00	
<b>Total week 12</b>			<b>48.00</b>	335.00
<b>Week 13</b>				
	4/9/2017	D	5.00	
	4/10/2017	D	5.00	
	4/11/2017	D	6.00	
	4/12/2017	D, P	5.00	
	4/13/2017	D, P	4.00	
	4/14/2017	D, P	5.00	
<b>Total week 13</b>			<b>30.00</b>	365.00
<b>Week 14</b>				
	4/16/2017	D, P	4.00	
	4/17/2017	D, P	3.00	
	4/18/2017	D, P	8.00	
	4/19/2017	D, P	4.00	
	4/20/2017	D, P	10.00	
	4/21/2017	D, P	6.00	
<b>Total week 14</b>			<b>35.00</b>	400.00
<b>Week 15</b>				
	4/23/2017	P	5.00	
	4/24/2017	P	8.00	
	4/25/2017	P	10.00	

	4/26/2017	P	3.00	
	4/27/2017	P	10.00	
<b>Total week 15</b>			<b>36.00</b>	436.00
<b>Week 16</b>				
	4/30/2017	P	10.00	
	5/1/2017	P	12.00	
	5/2/2017	P	8.00	
	5/4/2017	P	3.00	
<b>Total week 16</b>			<b>33.00</b>	469.00
<b>Week 17</b>				
	5/8/2017	O, W	6.00	
	5/9/2017	O, W	9.00	
	5/10/2017	O, W	15.00	
	5/11/2017	O, W	10.00	
<b>Total week 17</b>			<b>40.00</b>	<b>509.00</b>

**2nd Semester= 509 Hours**

**719 TOTAL HOURS**

# APPENDIX

## GRAPHIC FIGURES

### SECTION 1: Project Introduction

Figure 1.00  
Figure 1.01  
Figure 1.02

### SECTION 2: Site Analysis & Inventory

Figure 2.00  
Figure 2.01  
Figure 2.02

### SECTION 3: Design Strategies

Figure 3.00:  
Figure 3.01: Graphic: Mara Redding  
Figure 3.02: Graphic: Mara Redding  
Figure 3.03: Google Maps: <https://www.google.com/maps>  
Figure 3.04: Google Maps: <https://www.google.com/maps>  
Figure 3.05: Graphic: Mara Redding  
Figure 3.06; Graphic: Mara Redding  
Figure 3.07; Graphic: Mara Redding  
Figure 3.08; Graphic: Mara Redding  
Figure 3.09;  
Figure 3.10: Google Maps: <https://www.google.com/maps>  
Figure 3.11: Hank Aaron State trail map: <http://www.hankaaronstatetrail.org/>  
Figure 3.12: Graphic: Mara Redding; Google Maps: <https://www.google.com/maps>  
Figure 3.13: Graphic: Mara Redding  
Figure 3.14: Graphic: Mara Redding; Google Maps: <https://www.google.com/maps>  
Figure 3.15:  
Figure 3.16: Graphic: Mara Redding  
Figure 3.17: Graphic: Mara Redding; Google Maps: <https://www.google.com/maps>  
Figure 3.18: Graphic: Mara Redding  
Figure 3.19: Graphic: Mara Redding  
Figure 3.20: Graphic: Mara Redding  
Figure 3.21: Graphic: Mara Redding  
Figure 3.22: Graphic: Mara Redding  
Figure 3.23: Graphic: Mara Redding  
Figure 3.24; Graphic: Mara Redding  
Figure 3.25: Graphic: Mara Redding  
Figure 3.26: Graphic: Mara Redding  
Figure 3.27: Graphic: Mara Redding  
Figure 3.28: Graphic: Mara Redding  
Figure 3.29: Graphic: Mara Redding  
Figure 3.30: Graphic: Mara Redding  
Figure 3.31: Google Maps: <https://www.google.com/maps>  
Figure 3.32: Graphic: Mara Redding  
Figure 3.33: Graphic: Mara Redding  
Figure 3.34:  
Figure 3.35: Graphic: Mara Redding  
Figure 3.36: Graphic: Mara Redding  
Figure 3.37: Graphic: Mara Redding  
Figure 3.38: Graphic: Mara Redding  
Figure 3.39: <http://stackoverflow.com/questions/32349106/icon-calendar-generator>  
Figure 3.40: <https://www.dreamstime.com/stock-images-world-future-icon-image24010484>  
Figure 3.41: (<https://www.shutterstock.com/image-illustration/bright-future-ahead-road-sign-indicating-66401197>)

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